Developments in MARKETING SPREADS FOR AGRICULTURAL PRODUCTS in 1973

U.S. DEPARTMENT OF AGRICULTURE ECONOMIC RESEARCH SERVICE

ABSTRACT

Amid a strong upsurge in demand and reduced food supplies, the retail cost of a market basket of farm foods averaged 17 percent higher in 1973 than in 1972. The farm value of all food in the market basket averaged nearly a third higher. The farmer's share of the food dollar averaged 46 cents, 6 cents higher than in 1972, and the largest share in 20 years. The farm-to-retail spread, or gross marketing margin, continued to widen in 1973, averaging 6½ percent higher than in 1972. Estimates of cost and profit components of margins for 19 leading food products reveal that labor and packaging costs account for half to two-thirds of the processing margin for most of the items studied. Labor costs alone account for around half of retail store margins. Most other cost components of processing and retailing margins, such as business taxes, advertising, repairs, and rent are around 5 percent or less of the total margin.

Keywords: Price spreads, margins, costs and profits, food costs.

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SUMMARY

Food prices in 1973 rose at the most rapid rate in over a quarter century, reflecting strong domestic and foreign demand and reduced food supplies. Consumers spent an estimated $134 billion for food originating on U. S. farms, $18 billion more than in 1972. The retail cost of a market basket of farm foods averaged about 17 percent higher than in 1972. The retail cost of all food groups rose, animal-related products the most.

Higher farm values for food accounted for nearly three-fourths of the increase in the retail cost of the market basket in 1973. The farm value--or gross returns to farmers for products equivalent to market basket foods--averaged about a third higher than in 1972. The greatest price increase at the farm level was in poultry and eggs, 77 percent above the previous year. The farm value of fats and oils, bakery products, and livestock products, especially beef and pork, also increased sharply.

For only the second time since 1950, returns to farmers for food products in 1973 rose more than the costs of marketing. Farmers received $51 billion in 1973, $12 billion more than in 1972. The farmer's share of the market basket of foods averaged 46 cents, 6 cents higher than in 1972 and the largest share in 20 years.

The farm-to-retail price spread, or gross marketing margin, continued to widen in 1973, averaging 6½ percent higher than in 1972. Price spreads for most food groups increased. Spreads for fresh vegetables widened 18 percent and for meat, 8 percent. The overall farm-to-retail spread rose slightly more than the general price level.

The food marketing bill, which measures total charges for transportation, processing, and distributing farm foods, rose $6 billion in 1973 to $83 billion. Increases in prices of inputs purchased by marketing firms contributed most to the rise. Employees' wages continued to increase, although at a slightly slower rate than in past years.

Nearly half of the marketing bill in recent years has gone for labor costs. Labor costs for all marketing services rose 8 percent in 1973 to over $40 billion. The largest share of the labor bill went for food processing. However, increases for retailing, wholesaling, and away-from-home eating during the past decade have been a third greater than for processing. Other major components of the food marketing bill are food container and packaging materials, and transportation.

The marketing bill accounted for 55 percent of the consumer's food dollar for food consumed at home and 78 percent for food consumed away from home in 1973. The higher percentage for away from home eating reflects the added cost of preparing and serving food in restaurants and institutions. Food marketing costs have increased more rapidly for away-from-home eating than for food bought for consumption at home, more than doubling between 1963 and 1973, over twice the increase in costs for food consumed at home.

ERS has developed detailed information on cost and profit components for selected food items at each level in the marketing system, the first such data since the 1964 study by the National Commission on Food Marketing. As expected, cost and profit components for the products vary considerably, since products differ in form and composition and require different handling and processing methods.

Processing costs accounted for less than a fifth of the retail price for most food items in 1972, including the meat and dairy items, broilers, eggs, and fresh oranges, apples, potatoes, and lettuce. Such costs made up half of the retail price for applesauce, french fries, and catsup. Labor and packaging costs together accounted for half to two-thirds of the processing margin for nearly all of the items studied.

Costs of transporting goods from the processing or packing plant to a wholesaler or retail store varied widely, reflecting differences in perishability, bulkiness, and the distance food products are shipped. They ranged from only 2 or 3 percent of the retail price of meat, dairy products, broilers, and eggs, to 10 percent or more for fresh vegetables.

For all food items studied, retail store margins ranged from 10 to 43 percent of retail selling price, but were clustered around 20 percent. Labor accounted for 50 to 60 percent of the retail store margins for 15 of the 19 items. Packaging costs were about 10 percent of the retail margin for beef and pork, but were negligible for other products.

DEVELOPMENTS IN MARKETING SPREADS FOR AGRICULTURAL PRODUCTS IN 1973

The difference between the price consumers pay for a food product and the farm value of an equivalent amount of farm product represents the amount received by the food industry for processing and distribution. Consumers and farmers have long been interested in marketing spreads and the costs and profits of marketing foods from U. S. farms. Since the mid-1950's Congress has appropriated funds for research specifically for deriving price spreads and analyzing food marketing charges. The research is performed by the U. S. Department of Agriculture's Economic Research Service (ERS). This report summarizes recent findings on the trends in marketing spreads and presents for the first time detailed estimates of the costs and profits comprising the marketing margins for a number of individual foods. Farm-retail price spreads are published quarterly by ERS in the "Marketing and Transportation Situation" and monthly in a 2-page supplement.

MARKET BASKET PRICE SPREADS

ERS computes farm-retail price spreads for 65 farm-produced foods. The products are combined to form a "market basket" in which each product has a weight representing the average amount purchased annually per household in 1960/61. The market basket excludes fishery products, imported foods, and foods sold in away from home eating places.

The market basket collection of foods is valued at retail prices to obtain a retail cost. The quantity of farm product equivalent to the market basket foods is valued at farm prices to obtain a farm value comparable to the retail cost. Because of losses from processing, waste, and spoilage, the farm value represents larger quantities than the retail cost. For example, in the case of beef 2.28 pounds of live animal are needed for each pound of meat sold at retail. The price spread in this case is the difference between the average retail price of 1 pound of retail cuts and the farm value of 2.28 pounds of live animal less the value of the hide and other byproducts. The retail cost, farm value, and farm-retail spread are shown in table 1 for the market basket and individual food groups.

Food prices in 1973 rose at the most rapid rate in over a quarter century. The price increases last year, despite various phases of price controls, reflected strong domestic and foreign demand and reduced food supplies. Increasing employment, higher wages, and longer workweeks boosted personal incomes and domestic demand for food. Meanwhile, a number of conditions significantly reduced the amount of food available for consumption. Unfavorable weather conditions reduced harvests of several important fruit and vegetable crops and seriously hampered grain and soybean harvests during the fall of 1972, causing reduced food supplies in the first half of last year.

Table 1. --The market basket of farm foods by product group: Retail cost, farm value and farm-retail spread, annual 1972-73

Item	1973	1972	Change from: 1972 to 1973	
	Dollars	Dollars	Dollars	Percent
	Retail cost			
Market basket	1537.30	1310.82	226.48	17.3
Meat	523.10	422.54	100.56	23.8
Dairy	248.98	228.83	20.15	8.8
Poultry	72.05	50.60	21.45	42.4
Eggs	56.43	37.97	18.46	48.6
Bakery and cereal	213.71	192.07	21.64	11.3
Fresh fruits	66.96	58.82	8.14	13.8
Fresh vegetables	109.43	88.17	21.26	24.1
Processed fruits and vegetables	135.16	127.97	7.19	5.6
Fats and oils	50.04	45.21	4.83	10.7
Miscellaneous	61.44	58.64	2.80	4.8
	Farm value			
Market basket	699.87	524.14	175.73	33.5
Meat	331.83	246.33	85.50	34.7
Dairy	123.85	108.86	14.99	13.8
Poultry	42.64	24.59	18.05	73.4
Eggs	39.25	21.69	17.56	81.0
Bakery and cereal	47.36	31.93	15.43	48.3
Fresh fruits	21.65	17.50	4.15	23.7
Fresh vegetables	38.47	28.12	10.35	36.8
Processed fruits and vegetables	25.58	24.09	1.49	6.2
Fats and oils	18.49	12.04	6.45	53.6
Miscellaneous	10.75	8.99	1.76	19.6
	Farm-retail spread			
Market basket	837.43	786.68	50.75	6.5
Meat	191.27	176.21	15.06	8.5
Dairy	125.13	119.97	5.16	4.3
Poultry	29.41	26.01	3.40	13.1
Eggs	17.18	16.28	.90	5.5
Bakery and cereal	166.35	160.14	6.21	3.9
Fresh fruits	45.31	41.32	3.99	9.7
Fresh vegetables	70.96	60.05	10.91	18.2
Processed fruits and vegetables	109.58	103.88	5.70	5.5
Fats and oils	31.55	33.17	- 1.62	- 4.9
Miscellaneous	50.69	49.65	1.04	2.1

1/ The market basket contains the average quantities of farm-originated foods purchased annually per household in 1960-61. Retail cost is calculated from U.S. average retail prices collected by the Bureau of Labor Statistics. Farm value is payment to farmer for equivalent quantities of farm products minus imputed value of byproducts obtained in processing.

Even more importantly, production of livestock commodities declined, largely reflecting reduced profitability of livestock and poultry feeding during much of the year as feed grain and protein meal prices rose sharply. Price ceilings imposed on red meats in late March disrupted normal marketing patterns and created uncertainty among producers about expanding output. Per capita food consumption in 1973 was about 2 percent less than in 1972 and at the lowest level in 4 years.

Amid the strong upsurge in demand and reduced food supplies, the retail cost of the market basket of foods originating on U. S. farms averaged about 17 percent higher in 1973 than in 1972. The sharpest advance during the year occurred in August when the cost jumped 8 percent. This advance followed the easing of price controls that allowed higher prices for farm commodities to be passed through to retail for all foods except beef. Retail food costs fell slightly last fall due to declines in farm and wholesale prices for meat animals, broilers, eggs, and fresh fruits and vegetables, but they turned upward again in November and December.

Retail costs of all food groups averaged higher in 1973 than in 1972, more than two-thirds of the increased cost of the market basket was attributable to animal-related food products. The average cost for meat products was nearly a fourth above a year earlier with beef prices up about a fifth and pork prices nearly a third higher. Poultry and egg prices averaged nearly half again as much. In contrast, retail dairy product prices rose 9 percent.

Farmers received substantially higher prices for food products last year. The farm value of all foods in the market basket averaged nearly a third higher in 1973 than in 1972. Poultry and eggs topped the rise in farm prices, averaging 77 percent higher in 1973 than in 1972. Sharply higher prices for soybeans and wheat spurred an increase of around 50 percent in the farm value of fats and oils and bakery products. Returns to farmers for livestock products averaged nearly a third higher last year than in 1972, with the farm value of Choice beef up about a fourth and pork 50 percent. Overall, higher farm values for foods accounted for around three-fourths of the increase in the retail cost of the market basket last year.

The farm-retail spread--an estimate of the gross margin received by marketing firms for assembling, processing, transporting, and distributing the products in the market basket--widened in 1973, continuing a long-term upward trend. The farm-retail spread averaged 6½ percent higher than in 1972, nearly equaling the largest previous year-to-year increases the past quarter century of 7½ percent that occurred in 1951 and 1970. Price spreads varied widely during the year, reflecting wide movements in farm and retail prices and various phases of price controls. Spreads were squeezed in July during the price freeze and again in August as prices of raw agricultural products rose more rapidly than retail food prices. Spreads, however, widened substantially from September to December as farm prices declined from their summer highs. In December, the farm-retail spread for market basket foods was at the highest level of the year and 19 percent above a year earlier.

Price spreads for most food groups widened in 1973. Spreads for fresh vegetables, which have risen more than the average of all foods over the years, widened 18 percent last year. Spreads for poultry, usually relatively stable, increased 13 percent. Meat margins averaged 8 percent higher, with most of the increase occurring in the fourth quarter as livestock prices declined.

Historically, the farm-retail spread or margin has risen about in line with the general price level. This behavior stems largely from the fact that margins over time tend to reflect changes in prices and costs of labor, materials, and services purchased by marketing agencies from other sectors of the economy. In 1973, the farm-retail food price spread, which may be regarded as a measure of the price of food processing and distributing services, increased slightly more than the 5.3-percent increase in the general price level, as measured by the GNP implicit price deflator.

Long-term trends in the farm-retail spread and in the farm value have differed greatly (fig. 1). The spread has increased nearly every year during the past 20 years, while farm value has decreased in about half of these years, and exceeded the 1952 level only in recent years. Prices at all market levels have advanced sharply since the mid-1960's as inflationary forces built up throughout the economy. Prior to 1972, increases in margins accounted for most of the rise in retail food costs. But in the past 2 years, higher prices at the farm level have been largely responsible for rising costs at the retail level.

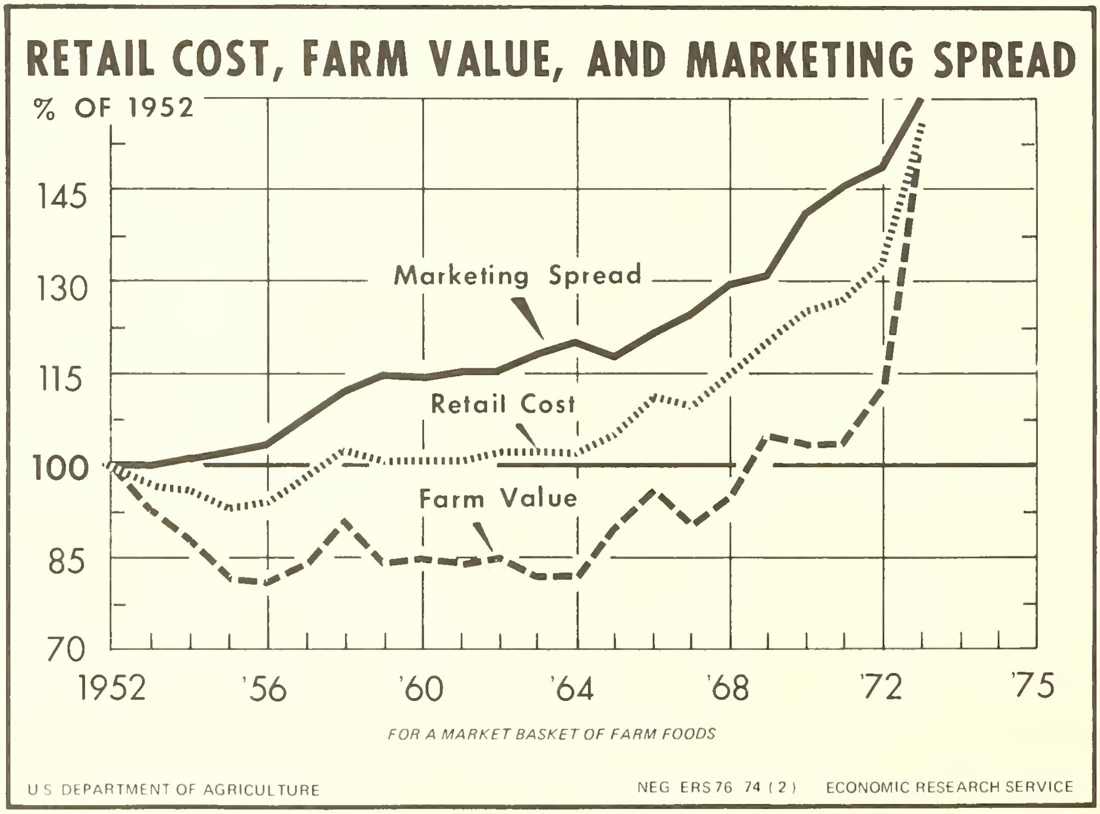

Figure 1

The sharp climb in returns to farmers for food products substantially increased the farmer's share of the food dollar last year. It averaged 46 cents in 1973, 6 cents higher than in 1972, and the largest share in 20 years. The farmer's share of the food dollar has fluctuated between 37 and 41 cents, following a decline from 52 cents in 1947 to 45 cents in 1953.

PRICES AND SPREADS FOR SELECTED FOODS

Beef and Pork

Farm-retail spreads for beef and pork widened substantially in late summer of last year after price ceilings were lifted, allowing retail prices to rise and processors and retailers to pass on increased costs (fig. 2 and 3). This followed squeezes in marketing margins during the freeze on prices in June and part of July for pork and through August for beef. Through April of 1973, marketing spreads for beef and pork had trended upward. The squeeze on margins in early summer and subsequent margin increases reflected the consequences of price control actions. Ceiling price regulations on meat, imposed in March 1973, disrupted normal flows of livestock to feedlots and slaughter and led to the widespread meat shortages in late summer.

The farm-retail marketing spread for pork widened about 12 cents per retail pound during 1973, averaging about 45 cents in December. All of the increase occurred in the wholesale-retail margin.

The farm-retail spread for beef averaged nearly 15 cents per retail pound greater in December of 1973 than a year earlier. Both the farm-carcass and the carcass-to-retail portions of the marketing spread widened substantially.

Meat price ceilings, first imposed on March 28, had mixed effects on meat prices and marketing spreads in 1973. Ceilings stabilized retail prices for both beef and pork from April through June, but rising live animal prices squeezed margins in July and August. The lifting of ceilings for pork in July and revision of price control regulations were followed by sharp increases in retail meat prices during August. Strong demand for beef and reduced slaughter forced up fed cattle prices against wholesale price ceilings in the summer of 1973, squeezing meat packers' margins. Many meat packers curtailed or suspended cattle slaughter for several weeks in late summer, causing meat shortages in many areas. To obtain beef supplies, some retailers arranged for custom slaughter of cattle.

Several factors reduced marketings of fed cattle in 1973 and pushed up prices to record levels. Weight gain was less than usual because of severe winter weather, excessively muddy lots in the spring, the ban on feeding DES, and changes in amounts of grain and supplement fed because of rapidly increasing feed costs. During the summer, rising feed costs squeezed cattle feeding margins. The announcement in July that beef price ceilings would be lifted in September and the observed jump in hog prices when ceilings were lifted on pork encouraged cattle feeders to hold back cattle nearing market weights for expected higher prices in September. But when beef price ceilings were lifted in September, cattle prices fell instead of rising further as

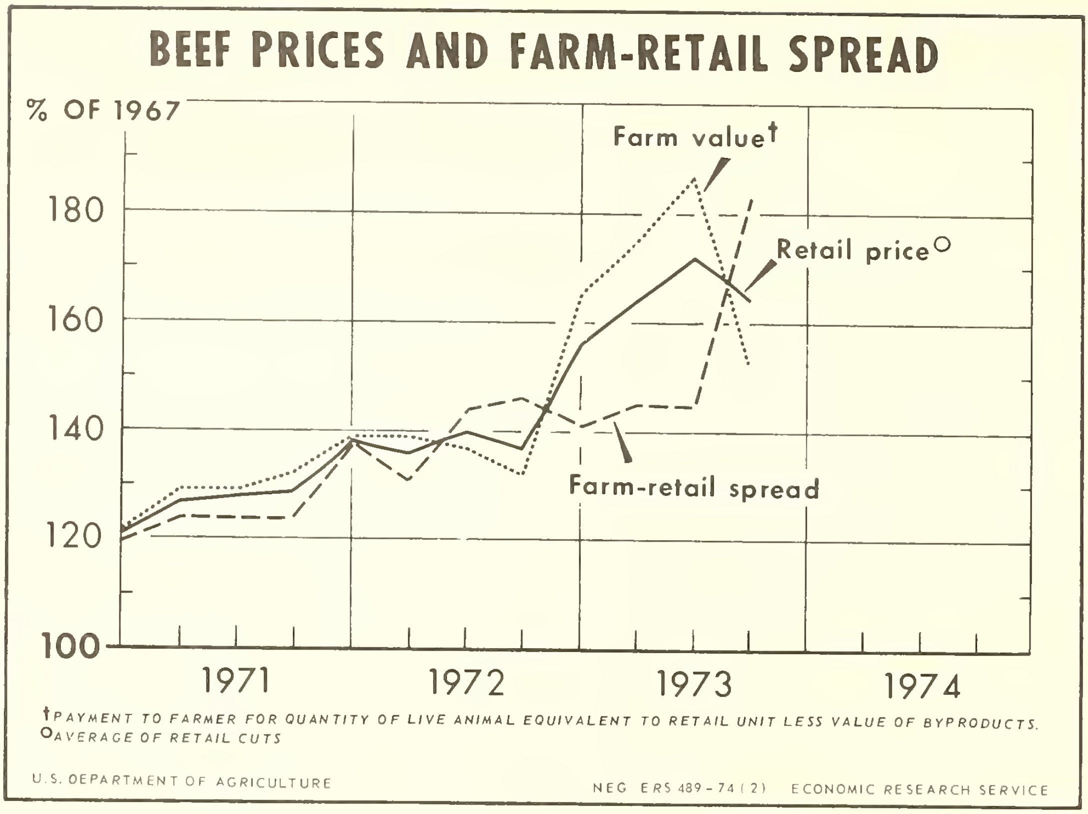

Figure 2

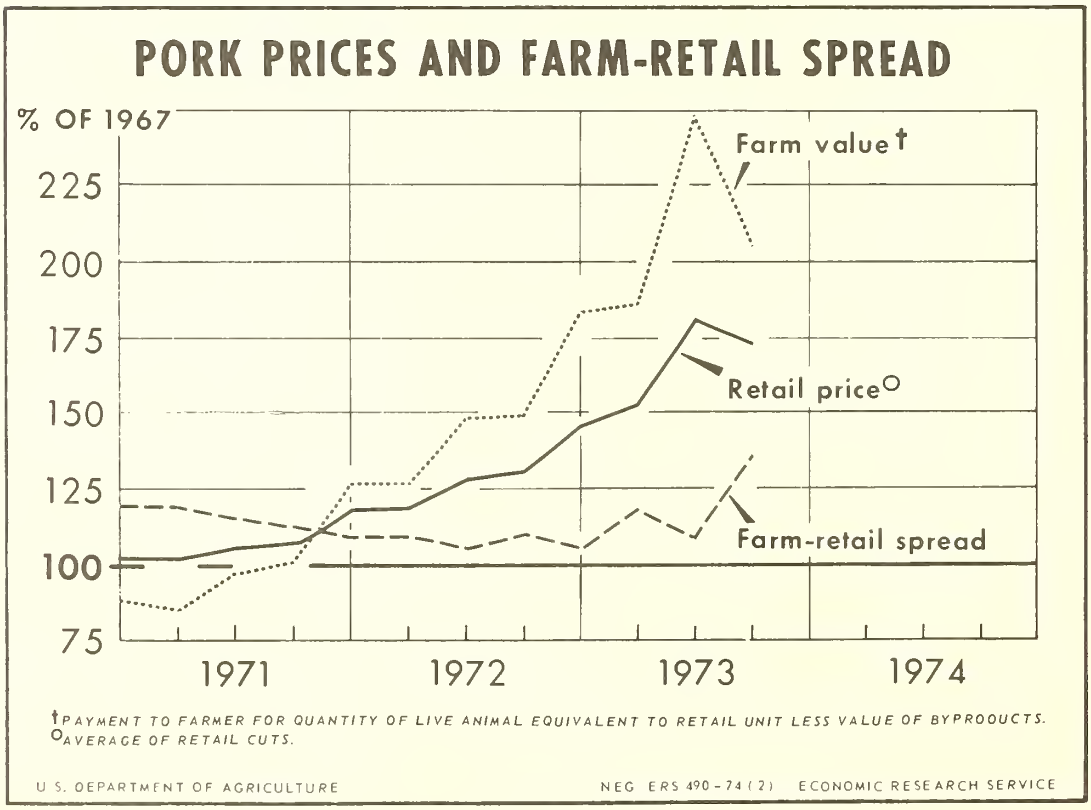

Figure 3

some producers had expected, reflecting increased cattle and hog marketings and apparent consumer resistance to high meat prices. Because of rising production costs, the decline in livestock prices last fall resulted in substantial losses for many hog producers and cattle feeders, which in turn adversely affected production expansion needed for this year.

Marketing spreads for beef and pork were at record levels throughout the fall of 1973. Retail prices fell, but much less than the decline that occurred in farm livestock prices. By the fourth quarter, composite retail beef prices had dropped back from summer highs to the spring and early summer level of around $1.35 per pound. The net farm value for beef averaged 81 cents per retail pound, 12 cents lower than in the second quarter. Pork retail prices at $1.16 per pound were well below the summer high but were 13 cents above spring 1973 levels. The net farm value per retail pound of pork in the fourth quarter averaged 72 cents, 7 cents higher than in April-June.

Eggs and Poultry

The demand for eggs and poultry was exceptionally strong in 1973 due in part to higher prices and short supplies of beef and pork. Thus, retail and farm prices of eggs, frying chickens, and turkeys rose substantially from 1972.

The price of grade A large eggs sold in retail stores in 12 major cities averaged 78 cents per dozen during 1973, 25 cents higher than in both 1971 and 1972. The farm price increased 77 percent during 1973, averaging 53 cents per dozen compared with 30 cents in 1972. The farmer's share of the consumers' dollar spent for eggs averaged 67 percent during 1973 compared with 57 percent in 1972.

Producers were somewhat better off in 1973 than in 1972, but price increases were accompanied by rising costs of inputs, particularly feed. Feed prices, one of the main cost components in egg production, increased 56 percent over 1972.

Marketing costs also increased but not nearly as much as feed prices. The total farm-to-consumer margin averaged 25.6 cents per dozen on grade A large eggs, compared with 22.9 cents per dozen in 1972. The retail margin averaged 11 cents per dozen eggs during 1973 compared with 9.1 cents in 1972. The farm-to-retailer margin averaged 14.6 cents per dozen in 1973 and 13.8 cents in 1972.

The retail price of frying chickens rose substantially during 1973, to an average 61 cents per pound from 42.6 cents in 1972. The farm equivalent value of frying chickens sold in 12 major cities increased 74 percent in 1973, from 19.6 cents per pound in 1972 to 34.1 cents in 1973. Rapidly increasing feed costs during 1973 were partly responsible for the increase in prices. The cost of broiler feed rose 55 percent, from $98 per ton in 1972 to $152 in 1973. The farmer's share of the consumer's dollar spent for frying chickens averaged 56 percent in 1973, compared with 46 percent for 1972.

The farm-to-consumer spread for frying chickens averaged 26.9 cents per pound last year compared with 23 cents in 1972. Most of this 17 percent increase occurred in the retail margin which rose from 9.8 cents per pound in 1972 to 14.2 cents in 1973.

The retail price of medium turkeys, 8-16 pounds, averaged 90.2 cents per pound during the 3-month period October-December 1973, compared with 56.1 cents per pound for the same period in 1972. The rise in the average farm equivalent value of medium turkeys from 32 cents per pound in 1972 to 58.1 cents in 1973 reflected the substantial increase in feed costs. The farmer's share of the consumers' dollar spent for medium turkeys averaged 64 percent in October-December 1973, up from 54 percent in October-December 1972.

Marketing charges after the turkeys left the farm increased by 24 percent over 1972. The farm-to-consumer spread for medium turkeys averaged 32.1 cents per pound during the last 3 months of 1973, compared with 25.9 cents per pound during last quarter 1972. The retail spread averaged 15 cents per pound during the last 3 months of 1973 compared with 13.5 cents per pound for the same period during 1972.

Fruits and Vegetables

Retail prices for most major fresh and processed fruits and vegetables increased in 1973. Higher prices were generally the result of short supplies; higher costs of labor, containers, energy, and transportation; and a strong demand accentuated by high prices of other foods, devaluation of the dollar, and short crops for a few major items in other countries.

Retail prices increased for all major fresh vegetables in 1973. Prices were particularly high in the winter, spring, and early summer due to short supplies and strong demand. Supplies of onions and potatoes (stored from extremely short crops in the summer and fall of 1972) were barely sufficient to satisfy demand at extremely high retail prices until new supplies became available in the spring and summer of 1973. Short supplies and temporarily high lettuce prices were the result of poor weather conditions in California and Arizona. Fresh vegetable prices were moderated some in the late summer and fall as increased supplies became available, but were still above the year earlier. Marketing margins for fresh vegetables widened in 1973, continuing a long-term upward trend. Farm prices of most vegetables were considerably higher than in 1972. The farmer's share of the retail price of vegetables averaged nearly 36 percent in 1973, up from 32 percent in 1972.

Responding to smaller supplies, both the retail price and farm value of most major fresh fruits increased in 1973. Supplies of most fresh deciduous fruits for 1972/73 marketing were substantially lower than a year earlier. Although the 1972/73 citrus crop was 6 percent greater than the preceding season, all of the increase went for processing. With fresh citrus supplies about the same as the year before, strong demand resulted in higher retail prices. While the marketing spread widened for most fruits, the farmer's share of the retail price increased from 30 percent in 1972 to about 32 percent in 1973.

Retail prices of most canned and frozen fruits and vegetables also increased in 1972/73. Higher prices for most processed deciduous fruits resulted from smaller supplies. Both the season's pack and carry-in were below the previous year. Although supplies of processed citrus products were larger than the year before, retail prices remained stable due to strong demand. Canned and frozen vegetable supplies were about the same as a year earlier; however, strong demand and brisk movement resulted in higher prices in 1973. The marketing spread increased for most processed fruits and vegetables--in some cases more than the retail price increase. Farm value increased for about two-thirds of the items. However, the farmer's share averaged about 19 percent in 1973, about the same as in 1972.

Bread

Unprecedented world demand and reduced supplies resulted in record-high wheat prices last year. Millers were able to pass on their substantially increased costs for bread-type flour under the pricing provisions of the Economic Stabilization Program. On the other hand, baker and retail prices were constrained until after midyear and the beginning of Phase IV. From midyear to December, the farm-retail spread widened about 2 cents a loaf, or over 10 percent.

The retail price of a 1-pound loaf of white pan bread sold in food stores averaged 27.6 cents in 1973, 2.9 cents higher than in 1972 (fig. 4). Prices during the year rose 28 percent, from 25 cents in December 1972 to 31.9 cents in December of 1973.

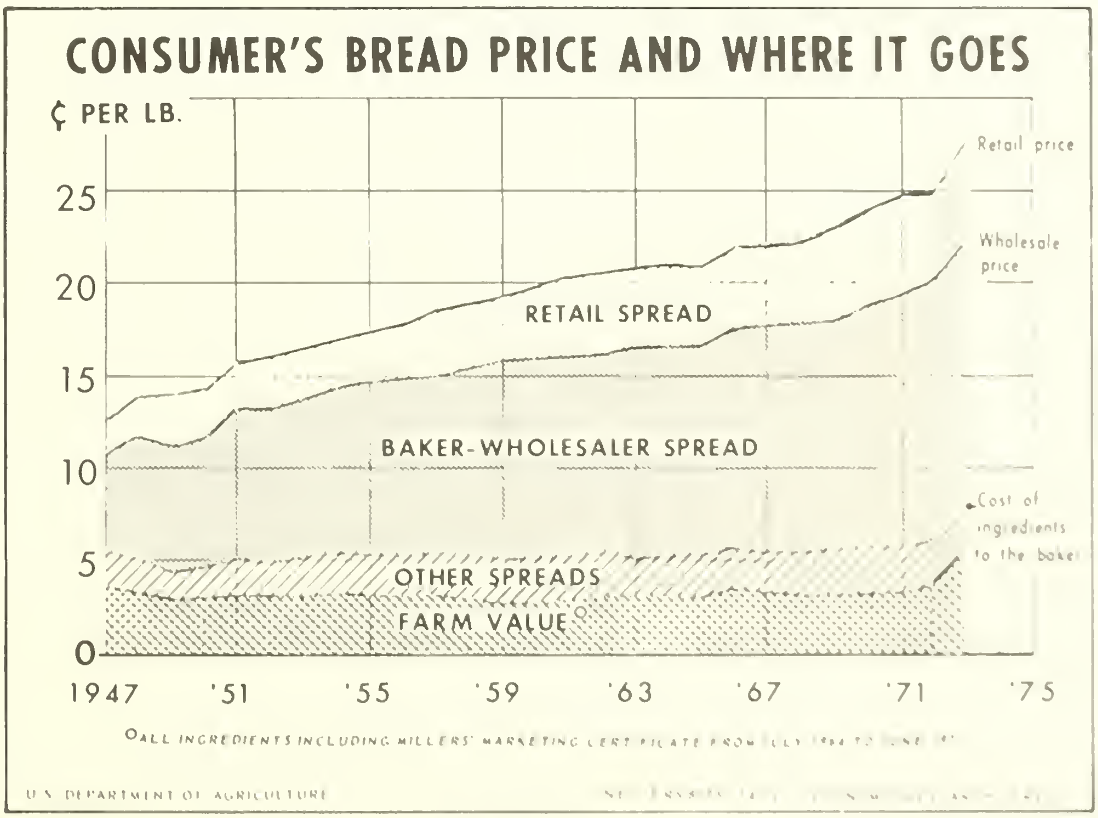

Figure 4

A number of factors triggered the increase in bread prices last year. The average farm value of ingredients used in a loaf of bread jumped sharply in 1973 to 5.5 cents, 1.7 cents above 1972. In December, the farm value of ingredients reached 7.2 cents, 100 percent higher than in July 1972 when the huge purchases by the Soviet Union triggered an upward movement in wheat prices.

The retailer's margin averaged 5.4 cents in 1973, 0.8 cent above 1972. But retail bread margins were 1.2 cents higher in December than in January. The baker-wholesaler's spread, which was constrained by the Economic Stabilization Program, was over 1 cent per loaf lower in mid-1973 than in June 1972. However, in the last half of 1973, the baker's margin rose 3 cents to a new high of 15.9 cents. The flour miller's spread between the price received for flour and cost of wheat per loaf of bread averaged 1.0 cent in 1973, up 67 percent over 1972. This spread had held at 0.6 cent for years.

COSTS AND PROFITS COMPRISING FARM-RETAIL SPREADS FOR SELECTED FOODS

Introduction

Accelerated inflation over the past couple of years, with concurrent rapid increases in food prices, has focused added public interest on food prices in general and on specific cost and profit components of marketing margins in particular. Because of this increased interest, questions are being raised which our present margins series cannot completely answer. Such questions include: What are the major contributors (cost components) to the price increases? How much have these components increased, and have the increases been "equitable" in view of increases in the general price level? Data for answering such questions are being requested by the general public through the Office of the Secretary of Agriculture, the Cost of Living Council, the Council of Economic Advisors, and the Congress. They also are needed by ERS researchers for developing a multidimensional cost model of the food marketing system as a basis for further examination of efficiency and equity issues in marketing.

In response to these needs, the Congress appropriated an additional $100,000 in fiscal year 1974 for research to provide information on cost and profit components on margins. Accordingly, a special task force was established to plan and coordinate a project that consisted of studies of margins at each level of marketing: Processing, transportation and wholesaling, and retailing. Commodity specialists in the Commodity Economics Division of ERS had major responsibility for developing estimates of cost and profit components of margins from the farm through the wholesale level. Researchers in the National Economic Analysis Division of ERS undertook the studies of margins at the retail level. The work was given high priority in an effort to obtain usable estimates during the first year of the project.

Future work will focus on strengthening and updating the initial estimates and perhaps extending the work to include more food items.

Estimates of 12 components of margins at various levels of marketing were made for 19 leading farm food items purchased by consumers in retail food stores. The following foods were selected for study: Beef, pork, fluid milk, butter, eggs, broilers, apples, oranges, tomatoes, lettuce, potatoes, rice, and bread. Both fresh and processed forms of the fruits and vegetables were investigated. The retail prices of these foods broken down among the aggregate costs of marketing functions and farm value are shown in table 2. For each food item, margins at each marketing level were allocated to the extent possible into the following components: Labor, packaging, transportation, business taxes, depreciation, rent, energy, interest, advertising, repairs, other costs, and profits before taxes. Components of margins are shown in tables 4 through 22. For some functions, only the aggregate cost could be estimated because of lack of data and therefore a breakdown of components is not shown.

In developing data on cost and profit components for most items, secondary data were used as far as possible but recent information of the nature required was limited. It was possible to obtain primary data from only a small sampling of firms because of the large number of items and types of marketing agencies to be studied. Other difficulties were encountered in making the estimates, including the allocation of overhead and other joint costs, and the lack of specific cost data from various marketing agencies. Therefore, these estimates are considered approximations rather than exact results. Additional work is needed to further develop data sources and procedures for allocating margins into cost and profit components.

Cost and Margin Estimates

Costs and margins for different products vary widely. This was expected since products differ in form and composition and require different handling and processing methods.

Processing or packing costs, depending on the item, are a relatively small proportion (less than a fifth) of the retail price for 11 out of the 19 items studied, including the meat and dairy items, broilers, eggs, and fresh oranges, apples, potatoes, and lettuce. In contrast, processing costs are around half of the retail price of applesauce, french fries, and catsup.

Labor is the largest component of the processing margin for most products, followed by packaging costs. For several processed products, packaging costs are significantly greater than labor costs. These two costs together account for half to two-thirds of the processing margin for nearly all of the items studied. Most other cost components of processing margins--such as business taxes, rent, and repairs--each account for around 5 percent of the margin. Energy costs are around 2 to 4 percent of processing margins.

Intercity transportation costs from the processing or packing plant to either a wholesaler or retail store vary widely among items, reflecting differences in perishability, bulkiness, and the distance food products are shipped. Costs of shipping meat, dairy items, broilers, and eggs, which are relatively dense in volume and of high value, account for only 2 to 3 percent of the retail selling price. On the other hand, shipping costs for the fresh

Table 2.--Distribution of retail price according to farm value and marketing function, 19 farm food products, 1972

Food item	Farm value 1/	Marketing functions: Assembly and procurement	Processing	Intercity transportation	Wholesaling	Retailing 2/	Retail price
			Cents				
Beef, Choice (pound)	72.5	1.3	5.3	0.9	8.0	25.8	113.8
Pork, (pound)	47.9	1.5	14.9	.9	2.0	16.0	83.2
Milk, sold in stores (½ gallon)	29.4	2.2	9.9	3/	11.8	6.5	59.8
Butter (pound)	63.8	2.3	5.5	1.3	2.5	11.7	87.1
Broilers (pound)	20.1	1.3	6.3	1.6	3.7	8.4	41.4
Eggs, grade A or AA large (doz.)	29.9	.8	7.6	1.6	1.8	10.7	52.4
Apples (3-pound bag)	27.3	2.5	14.9	5.6	6.3	23.5	80.1
Oranges, California (dozen)	32.1	1.5	16.7	10.3	9.3	52.1	122.0
Tomatoes, Florida (pound)	13.4	.5	4.9	3.0	11.5	17.2	50.5
Lettuce, California (head)	3.7	.3	6.0	6.1	9.7	17.2	43.0
Potatoes (10-pound bag)	38.6	4/	18.0	12.3	9.1	35.4	113.4
Applesauce (303 can)	5.5	.3	10.6	.9	1.8	5.4	24.5
Orange juice, single strength (46-ounce can)	12.8	.9	18.3	6.7	5/	9.6	49.3
Orange juice, frozen concentrate (6-ounce can)	8.2	.5	6.5	1.1	3.2	5.5	25.0
Tomatoes, Calif. whole (303 can)	2.3	.5	13.7	2.2	.8	4.2	23.7
Tomato catsup, California (14-ounce bottle)	5.3	.7	13.2	2.8	3.3	5.1	30.4
Potatoes, frozen french fried (9-ounce package)	3.1	4/	8.4	1.0	.3	4.1	16.9
Bread, white (1 pound)	2.8	.4	6/ 7.6	7/ .3	8/ 9.0	4.6	24.7
Rice, long grain (1-pound pkg.)	9.4	4/	1.7	1.2	9/ 7.6	4.1	24.0

1/ The farm value is the gross return to farmers for the quantity of farm products equivalent to the unit sold at retail minus imputed value of byproducts. Because of losses from processing, waste, and spoilage the farm value represents larger quantities than the retail unit. 2/In-store costs only. Headquarters expense, warehousing, etc., included in wholesaling. 3/ Included in wholesaling. 4/Included in farm value. 5/ Implicity included in costs of other functions. 6/Flour milling and bread baking. 7/ Flour only. 8/ Includes bakers' wholesaling and delivery costs. 9/ Includes packaging.

fruits and vegetables are 10 percent or more of the retail price.

Retail store margins for the 19 items ranged between 10 and 43 percent of the retail selling price but are clustered around 20 percent. Labor is by far the largest cost component of retail store margins. For 15 of the 19 items, labor cost makes up from 50 to 60 percent of the store margin. Packaging costs are around 10 percent of the retail store margins for beef and pork but are negligible for other products which in most instances are packaged when they arrive at the store. Most other cost components of retail store margins are around 5 percent or less of the total margin.

The detailed cost and profits comprising the margins for the foods studied are shown in tables 4 through 22 along with a description of the methods, sources of data, and limitations of the estimates. The method of estimating cost and profit components of retailing margins was similar for all items and is therefore discussed separately. Methods and data sources used for estimating processing costs and margins and transportation varied widely and are therefore discussed individually. Frequent reference is made to the Economic Research Service (ERS), Statistical Reporting Service (SRS), and Bureau of Labor Statistics (BLS).

Interpretation and Use of Data

This work provides comprehensive cost and profit data for individual products at each level of the marketing system for the first time since the 1964 study by the National Commission on Food Marketing. This information is needed to explain and evaluate changes in marketing margins and food prices and to provide insight in the distribution of returns to factors of production. Cost and profit data and related information provides marketing intelligence for monitoring the operation of the marketing system and enhancing public knowledge of where the food dollar goes.

The cost and profit components of margins are on an aggregate and annual basis. Because prices and costs vary considerably over time and from one geographic area to another and between firms, these data do not apply to cost and profit situations other than those indicated. In no instance are they intended to reflect the costs and profits of individual firms.

Retail Store Margin Allocations

Retail costs and profits were estimated based on typical supermarket operations. About 75 percent of grocery store sales were made through supermarkets in 1972, and more data are available on their costs than for other food stores.

Gross Margins

The first step in estimating the cost and profit components comprising retail margins for the individual foods was to estimate gross margins for each food item. This work was based on the data published in "Chain Store Age" and "Progressive Grocer" trade journals, Cornell University reports of "Operating Results of Food Chains", Purdue University studies of independent

retail store operations, and ERS price spread data series. 1/ In-store gross margins for most food items were figured using average retail prices collected by BLS. These prices are regularly used by ERS in deriving farm-retail price spreads.

Headquarters expense was not treated as part of the retail store margin and therefore some adjustments were made in gross margins to remove this expense item. Headquarters expense is included in wholesaling costs along with warehousing and delivery costs.

Gross margins also were computed for major departments, such as meat and produce, and for the total store to control the allocation of total store costs and profits to individual items (table 3). The overall retail store gross margin was estimated to be 17.5 percent of sales for 1972.

Table 3.--Estimated in-store gross margins, costs, and profits of supermarkets, by major departments, 1972 1/

Item	Meat	Produce	Dry grocery	Dairy 2/	Frozen foods	Total store
	Percent of sales					
Labor	11.51	15.58	6.92	8.78	10.91	8.94
Direct	5.06	9.63	4.71	3.48	8.91	5.18
Departmental	3.93	2.62	.69	.69	.69	1.55
General	1.81	2.38	1.09	4.08	.63	1.66
Fringe benefits	.71	.95	.43	.53	.68	.55
Packaging	1.72	.31	.31	.19	.80	.63
Repairs	.34	.96	.38	.30	.92	.43
Energy	.74	2.70	.27	.75	3.10	.73
Depreciation	.49	1.41	.56	.44	1.35	.63
Business taxes	.76	1.46	.50	.44	1.22	.64
Rent	1.01	2.88	1.15	.90	2.77	1.29
Interest	.13	.17	.08	.29	.05	.12
Advertising 3/	1.80	1.80	1.80	1.80	1.80	1.80
Other	1.68	2.38	.68	3.01	1.12	1.32
Profit before taxes	1.02	1.35	.62	2.31	.36	.94
Total	21.20	31.00	13.27	19.21	24.40	17.47

1/ In-store margins exclude warehousing and delivery costs and headquarters expense.
2/ Includes ice cream and other refrigerated items such as bakery products, fruit juices, and dips.
3/ Includes 0.05 cent for labor.

1/ The mention of company names in this study is for identification only and does not constitute endorsement by USDA over any companies not mentioned.

Cost and Profit Components

Estimates of the cost and profit components of the gross margins were made in three basic steps for individual products using data from the previously mentioned sources and data generated by COSMOS (Computer Optimization and Simulation Modeling for Operating Supermarkets), a management tool developed by Case and Co., under contract for the National Association of Food Chains. 1/

First, direct labor costs--which accounted for about a third of the total retail store margin and three-fifths of all labor used by the store--were allocated to individual products based on COSMOS data and a survey of chain-store handling practices. COSMOS provided the data on handling time needed to perform the different tasks involved in moving products through supermarkets. These handling times were weighted by the practices used by some of the larger chains. Handling times were multiplied by typical wage rates for each type of work done to estimate the direct labor cost. Case and Co. also provided information for estimating packaging costs, equipment depreciation, and direct energy costs for individual products.

The second step involved allocating costs related to space and equipment (rent, utilities, insurance, taxes, depreciation, and repairs) to individual products. These costs were allocated on the basis of average space utilization and inventory turnover of departments and individual products in a typical supermarket. This allocation took into account the fact that the meat and produce departments have a lower density of product display than grocery. Products selling more units in a given space have a higher turnover rate and consequently a lower unit cost as the cost of the space is divided by more units. Space-related cost for the average product amounts to a fifth of total store costs and profit.

Advertising was allocated to individual items in the same ratio that total advertising costs was of store sales. This procedure recognizes that trading stamps are given on the basis of sales and much of the media advertising tends to influence sales of all products. The amount allocated to each product was 1.8 percent of retail price.

After accounting for direct labor costs, space-related costs, and advertising, the remaining or residual retail store margin was distributed to indirect store labor cost, interest expense, other miscellaneous costs, and profit. Distribution was made to each product according to the share that each cost represented of the remaining store margin. Of the residual margin, 48.5 percent was allocated to labor, 3.3 to interest, 22.3 percent to miscellaneous other costs, and 25.9 percent to profit. While profit was a fourth of the residual margin, it makes up less than 1 percent of total store sales.

Effect of Sample Selection

Many of the food items selected by ERS sell in larger-than-average volume. Therefore, it is not possible to use these items to generalize about components of margins for other items. The sample items have different costs than most other grocery products, particularly space-related costs, general overhead expenses, and profits. Space costs consisting of rent, depreciation, utilities, repairs, and taxes are lower because the rate of inventory turnover for the selected items averages two to three times higher than for other items. Thus, these fixed costs for the sample food products are spread over more units than for other products utilizing the same amount of space.

Labor expenses incurred by the store are similar between the sample items selected for the study and other products, except for slight variations resulting from differences in the size and weight of products. This is particularly true of the direct labor associated with moving and handling products.

The residual margin to cover overhead costs and profit for the sample items are higher than the average for nonselected items because space-related costs are lower and gross margins are larger for sample items compared with nonselected items. Profit per dollar of sales averages about 1.6 percent for sample items compared with 0.8 percent for nonselected items.

Wholesaling Costs

Wholesaling includes the costs for performing warehousing, delivery, assembly, repacking, administrative and headquarters functions by independent wholesalers and by integrated retailers. Wholesaling costs, excluding intercity transportation, were a residual margin for most products, derived by subtracting the farm value, processing margin, transportation, and retailing margin from the retail price. Wholesaling costs were not separately identified by cost components for most foods. The total of these costs is shown in the tables as "unallocated" costs and profit.

Components of Margins for Selected Foods

Beef and Pork (tables 4 & 5)

Cost and profit components were estimated for the processing portion of the farm-carcass spread. Price spreads for beef and pork are published by ERS. To obtain the processing margin, the farm-carcass spread was adjusted for farmer marketing costs and the costs of transporting meat.

The farm-carcass spread for beef averaged 7.5 cents per retail pound in 1972. Subtracting estimated farmer marketing costs of 1.3 cents lowered the spread to 6.2 cents. Adjusting for the cost of transporting meat from the processing plant to the city where consumed further decreased the spread by 0.9 cent, leaving a processing margin of 5.3 cents. The processing margin includes the cost from the time the packer-slaughterer purchases the cattle until the carcasses are sided or quartered, ready to be shipped from the packing plant.

The farm-wholesale spread for pork averaged 17.3 cents per retail pound in 1972. Farmer marketing costs were estimated to be 1.5 cents, and the cost of transporting meat from the processing plant to the city where consumed was estimated at 0.9 cent, leaving a processing margin of 14.9 cents. The processing margin includes the costs from the time the packer-slaughterer purchases the hogs until the carcasses are processed into primals, smoked hams, cured bacon, and other products ready to leave the plant.

Estimates of components of the processing margin were based on previous studies and survey data. The American Meat Institute (AMI) and the National Independent Meat Packers Association assisted in obtaining data for beef from three packing firms and data for pork from four firms. A composite estimate of each component was computed, relying most heavily on the data that were considered most reliable and representative. The profit estimate was based on AMI's Financial Facts for 1972.

While the total processor margins for beef and pork are derived from U. S. averages, estimates of components are only approximations of industry performance. Efficiency and costs and profits vary greatly among plants due to age and location of plants. Further work is planned to verify these approximations.

Grade A Milk Sold Through Stores (table 6)

Milk processing and wholesaling margins and costs were estimated from several sources of data. Farm value is derived from prices reported by SRS. The retail price is the U. S. average reported by BLS. Procurement and assembly costs were obtained from accounting records of producer cooperatives and from Federal order market data. Milk dealers' costs and margins were obtained from accounting records of processors and distributors through a private accounting and consulting firm.

Table 4.--Beef (Choice): Components of margins per pound at retail, 1972.

Costs and profit	Farm value	Marketing functions: Assembly of live animal	Processing	Wholesaling	Retailing	Retail price
			Cents			
Labor	-	-	2.9	-	14.7	-
Packaging	-	-	.3	-	3.2	-
Transportation	-	-	.4	2/ 0.9	-	-
Business taxes	-	-	1/	-	.8	-
Depreciation	-	-	.1	-	.3	-
Rent	-	-	1/	-	.6	-
Repairs	-	-	.2	-	.2	-
Advertising	-	-	1/	-	2.0	-
Interest	-	-	.1	-	.2	-
Energy	-	-	.2	-	.5	-
Other	-	-	.7	-	1.9	-
Profit	-	-	.4	-	1.4	-
Unallocated	-	-	-	8.0	-	-
Total	72.5	1.3	5.3	8.9	25.8	113.8

1/ Less than 0.1 cent.
2/ Intercity.

Table 5.--Pork: Components of margins per pound at retail, 1972.

Costs and profit	Farm value	Marketing functions: Assembly of live animal	Processing	Wholesaling	Retailing	Retail price
			Cents			
Labor	-	-	7.8	-	7.1	-
Packaging	-	-	1.6	-	1.8	-
Transportation	-	-	.3	2/ 0.9	-	-
Business taxes	-	-	.2	-	.7	-
Depreciation	-	-	.3	-	.8	-
Rent	-	-	.1	-	1.6	-
Repairs	-	-	.5	-	.3	-
Advertising	-	-	.2	-	1.5	-
Interest	-	-	.3	-	1/	-
Energy	-	-	.4	-	1.3	-
Other	-	-	2.1	-	.7	-
Profit	-	-	1.1	-	.2	-
Unallocated	-	-	-	2.0	-	-
Total	47.9	1.5	14.9	2.9	16.0	83.2

1/ Less than 0.1 cent.
2/ Intercity.

Table 6.--Grade A whole milk sold through retail stores: Components of margins per half gallon at retail, 1972.

Costs and profits	Farm value	Marketing functions: Procurement & assembly 1/	Processing	Wholesaling 2/	Retailing	Retail price
		Cents				
Labor	-	0.32	3.1	6.9	3.5	-
Packaging	-	-	2.7	-	.1	-
Transportation	-	1.52	-	1.7	-	-
Business taxes	-	.03	.4	.5	.2	-
Depreciation	-	.04	.5	.2	.1	-
Rent	-	.02	.3	.1	.2	-
Repairs	-	.03	.8	.2	.1	-
Advertising	-	.01	-	3/ .9	1.1	-
Interest	-	.04	.1	4/	.1	-
Energy	-	.01	.3	4/	.1	-
Other	-	.15	1.2	.7	.5	-
Profit	-	-	.5	.6	.5	-
Total	29.4	2.17	9.9	11.8	6.5	59.8

1/ Includes laboratory and farm-quality field service, pickup at the farms, transportation, receiving and reloading as necessary, and final delivery to the processor.
2/ Performed by the processor.
3/ Dairy products, especially milk, are also advertised through cooperative ventures separate from other functions. It is not included in this estimate.
4/ Less than 0.1 cent.

An analysis of procurement and assembly costs indicated that the farmer pays about 1.4 cents of the transportation cost and cooperatives pay the remaining procurement and assembly cost of about 0.8 cent. The cost of a minor portion of assembly and procurement services performed by the processor is included in the processing margin.

Costs and margins of milk dealers were prorated to processing and wholesaling based on average costs of 30 firms engaged in processing and distribution. Profits were obtained directly from the data rather than as a residual. Other cost is a residual.

Comparison of 1972 data with National Commission of Food Marketing (NCFM) estimates for 1964 revealed that, over the 8-year period, assembly and wholesaling costs rose over 50 percent, while processing costs rose only 1 percent. Assembly costs consist largely of labor and transportation. The transportation portion of assembly costs increased from 0.8 cent to 1.5 cents per half gallon, while labor decreased from 0.6 to 0.3 cent. This reflects an increase in contract hauling, resulting in a part of the labor function being included in

the transportation portion of the assembly component, and a decrease in labor required as bulk assembly replaced can handling. The largest increase in the wholesaling margin was due to an increase in the labor cost component from 4.3 to 6.9 cents.

The very small increase in unit processing costs was attributable, in part, to the movement to larger, more efficient processing facilities, and to the mechanization of in-plant handling, both before and after packing. Also, greater use of equipment which can be cleaned in place in processing plants led to greater efficiencies.

Butter (table 7)

About half of the Nation's butter is made from milk marketed under the Federal order system, double the proportion of 5 years ago. Concurrently, the number of plants manufacturing butter dropped by nearly half to 474 in 1972. Butter production declined about 10 percent between 1967 and 1972. The decline in number of plants and production has been accompanied by a marked change in manufacturing and distribution patterns. Larger plants have combined the continuous churn process and soft-printed butter process (whereby butter is printed and packaged directly from the churn), eliminating the printing and packaging process at the wholesale level. Most soft-printed butter moves directly from the butter plant to the retailer's warehouse.

Although the wholesaling function is less recognizable than formerly, both processing and wholesaling functions were assumed in allocating costs because some butter moves in bulk from plant to a wholesaler for printing and packaging and delivery to retail warehouses. Therefore, cost estimates are a weighted average of handling methods rather than the average for a typical method. Wholesaling includes all intercity transportation cost but only the proportionate share of the cost of other functions performed separately from manufacturing. Packaging costs, for example, were divided between manufacturing and wholesaling. Cost estimates are based on data from a sample of cooperatives and plants accounting for 24 percent of total butter production.

Producer cooperatives dominate the manufacture of butter, primarily using it to balance the fluctuating supply and demand for fluid milk and other products. Since cooperatives divert milk to butter production, a pro-rata share of milk assembly and procurement costs was allocated to butter.

Policies followed in pricing butterfat to the butter department vary considerably in the industry. Some use the actual cost paid for the butterfat in the market, while others use quite different allocation procedures, giving a wide range of butterfat costs. The butterfat differential in the appropriate Federal order market was used as the most representative cost of butterfat to the butter plant. Producer hauling charges were subtracted from this cost to obtain the net farm value of the butterfat.

The cost of procurement, manufacturing and wholesaling per pound of butter was 11.6 cents in 1972 compared with 13.8 cents in 1964. This savings was realized through economies of scale in butter production, improved procurement techniques, and through the substitution of continuous churns for batch churns.

Table 7.--Butter: Components of margins per pound at retail, 1972

Costs and profit	Farm value 1/	Marketing functions: Procurement: Contract hauling 2/	Procurement: Other 3/	Manufacturing	Wholesaling 4/	Retailing	Retail price
			Cents				
Labor	-	-	0.27	1.89	0.56	5.0	-
Packaging	-	-	-	1.38	1.02	.1	-
Transportation	-	1.82	-	.06	1.34	-	-
Business taxes	-	-	.02	.10	.08	.2	-
Depreciation	-	-	.04	.30	.05	.2	-
Rent	-	-	.01	.08	.09	.3	-
Repairs	-	-	.03	5/.20	.03	.1	-
Advertising	-	-	-	6/.04	7/	1.6	-
Interest	-	-	-	.11	.02	.2	-
Energy	-	-	.01	.34	.02	1.3	-
Other costs	-	-	.11	8/.75	.03	1.4	-
Profit	-	-	-	9/.26	.54	1.3	-
Total	63.76	1.82	.49	5.51	3.78	11.7	87.1

1/ Value of butterfat in butter at the plant less producer hauling charge.
2/ Of contract hauling costs, 0.27 cent is paid by producers and 1.55 cents by manufacturers.
3/ Costs for hauling milk from farm in plant-owned trucks, laboratory and field service to producers, and operating receiving and reload stations.
4/ Includes prorated costs incurred by wholesalers in printing and packaging butter into 1-pound cartons of quarter-pound wraps for sale to retailers, assuming 35 percent of the printed butter was hard-printed by wholesalers and 65 percent was soft-printed in manufacturing plants.
5/ Excludes plant labor used to repair buildings and equipment, which is included under labor.
6/ Dairy products are also advertised through cooperative ventures of manufacturers and producers. This cost is not included in this estimate.
7/ Less than 0.005 cent.
8/ Other ingredients (salt and color), general plant and office supplies, insurance, utilities, professional and other services, travel and related expenses, and other costs.
9/ Butter is predominately manufactured and marketed by cooperatives; therefore, profit is not strictly comparable to the profit of private firms.

Broilers (table 8)

Costs of assembling, processing, and transporting broilers were estimated for ready-to-cook, ice-packed broilers. Allowance was made for grading loss costs.

Five sources of data were used in estimating the cost and profit components: (1) Previously published research reports, (2) detailed cost data from 11 broiler processing plants for 1971, (3) personal visits and telephone contacts with a limited number of plant managers, (4) contacts with extension personnel, and (5) telephone contacts with firms producing packaging materials.

Processing costs were synthesized for four regions of the United States--the Northeast, Southeast, Southwest, and West. The major difference in costs among regions was in the estimates for fixed and variable labor costs. Fixed labor costs were derived primarily from processing plant data. Variable labor costs were estimated by assuming an efficiency standard, obtained from records and interviews with plant managers, and applying a different wage rate for each region. Wage rates were derived from published series and information supplied by extension personnel. Other processing cost components were derived from published and plant data and adjusted to allow for changes in costs if necessary. The four regional estimates of processing costs were weighted by regional production into a U. S. average.

Assembly and delivery costs were estimated to go with the weighted U. S. processing cost. The assembly cost was derived from the average cost for the sample of 11 processing plants. The delivery cost was synthesized from data supplied by a regional poultry association .

The major weaknesses of the estimates are the small size of the samples in each geographic location and the dependency on 1971 data for estimating processing costs. The estimates may be more representative of costs in the South than in the Northeast or West. Data were not available on the profit component for processing broilers so an estimate was made based in part on the opportunity cost of capital. Processing costs in total are comparable with estimates made by industry groups. Assembly and delivery costs appear reasonable but transportation cost figures were not available to verfiy the estimates.

The estimated cost of processing broilers in 1972, including assembly and intercity transportation, was 9.2 cents per pound compared with the 1964 estimate by the National Commission on Food Marketing of 5.7 cents.

Of the major cost components, labor increased the most--from 1.4 cents per pound in 1964 to 2.9 cents in 1972. In 1964, broiler processing was largely mechanized and subsequent changes in equipment and efficiency have not been sufficient to offset increases in wage rates and equipment costs. The cost of assembly was estimated at 1.3 cents per pound in 1972, up from 0.6 cent in 1964. This cost also reflects the increased cost of labor. Intercity transportation costs in 1972 were estimated to be 0.6 cent per pound higher than in 1964.

Table 8.--Broilers: Components of margins per pound at retail, 1972.

Costs and profit	Farm value 1/	Marketing functions: Assembly	Processing	Wholesaling	Retailing	Retail price
			Cents			
Labor	-	-	2.9	-	4.8	-
Packaging	-	-	.8	-	.4	-
Transportation .	-	1.3	-	3/ 1.6	-	-
Business taxes .	-	-	.1	-	.3	-
Depreciation ...	-	-	.3	-	.2	-
Rent	-	-	2/	-	.2	-
Repairs	-	-	.3	-	.1	-
Advertising	-	-	-	-	.8	-
Interest	-	-	.1	-	.1	-
Energy	-	-	.4	-	.3	-
Other	-	-	.9	-	.7	-
Profit	-	-	.5	-	.5	-
Unallocated	-	-	-	3.7	-	-
Total	20.1	1.3	6.3	5.3	8.4	41.4

1/ Estimated live transfer value converted to ready-to-cook equivalent. Few sales of live broilers occur because most production is under contract to integrated firms. 2/ Less than 0.1 cent. 3/ Intercity.

Table 9.--Eggs, grade A or AA large: Components of margins per dozen at retail, 1972

Costs and profit	Farm value	Marketing functions: Assembly	Processing	Wholesaling	Retailing	Retail price
			Cents			
Labor	-	-	1.7	-	5.7	-
Packaging	-	-	3.2	-	.1	-
Transportation .	-	0.8	-	1.6	-	-
Business taxes .	-	-	.4	-	.2	-
Depreciation ...	-	-	.3	-	.1	-
Rent	-	-	-	-	.2	-
Repairs	-	-	.1	-	1/	-
Advertising	-	-	.1	-	.9	-
Interest	-	-	.1	-	.2	-
Energy	-	-	.2	-	.1	-
Other	-	-	.9	-	1.6	-
Profit	-	-	.6	-	1.6	-
Unallocated	-	-	-	1.8	-	-
Total	29.9	.8	7.6	3.4	10.7	52.4

1/ Less than 0.1 cent.

In an effort to improve the estimates of costs in the future, cooperative agreements with a number of universities have been proposed to conduct field studies on broiler production and marketing costs. Plans are being made to secure selected cost components on a regular basis.

Eggs (table 9)

Costs of assembling, processing, and transporting eggs to wholesalers and other city receivers were estimated for graded and cartoned eggs. Allowance was made for handling losses.

Five sources of data were used in estimating the cost components: (1) Published research reports, (2) detailed cost data from 12 egg packing plants, (3) cost data supplied by a trade organization, (4) intercity transportation cost from the Market News Service, and (5) telephone contacts with manufacturers of egg cartons and cases. Not all sources of data were used for estimating individual cost components. For packaging costs, only data for those plants cartoning more than 70 percent of their volume were used. Similarily, labor costs were determined from only those plants that cartoned a high proportion of their eggs.

The major strengths of the estimates are the relatively recent studies available and the large number of plants represented in these studies. It is difficult to know if the estimates are representative of U. S. average costs because the studies include more egg processing plants in the South than in other areas, and do not include the operations of very large egg production and marketing complexes. The costs for transportation and marketing are similar to current estimates made by some industry groups.

The estimated cost per dozen eggs for assembly, processing, and intercity transportation, including breakage in processing was 10 cents in 1972 compared with 8.9 cents in 1964, as reported by the National Commission on Food Marketing.

There are several reasons why the cost of assembly, processing, and transportation for eggs increased relatively little during this period while broiler marketing and processing costs increased about three-fifths. The broiler industry was already highly coordinated in 1964 and most processing plants were large enough to achieve economies of scale. In contrast, the egg industry has become more coordinated since 1964, processing plants have become larger and more efficient, and significant economies have been achieved in assembly and processing. This is reflected in the labor processing cost of 1.7 cents per dozen eggs in 1972, only slightly higher than the 1.6 cents in 1964. Packaging and intercity transportation costs are higher than in 1964.

White Bread (table 10)

Prices and price spreads at each stage in the marketing process are published by ERS and represent U. S. averages for white pan bread sold in retail food stores. Main sources of data for these estimates are BLS, Census, SRS, and the Agricultural Marketing Service (AMS). Bread-type flour prices and sales data are collected regularly by ERS from 20 milling firms.

Secondary sources of data were used to allocate spreads into cost and profit components. ERS survey data on costs of handling grain at elevators were used to estimate wheat assembly and merchandising costs. Transportation cost of wheat between the farmer's point of sale and the flour mill was estimated by deducting total handling costs and profits at elevators from the spread between farm value of wheat and cost of wheat to the miller.

Data published by the NCFM were used to allocate the miller's spread for 1972. Flour transportation cost between mill and baker was derived by deducting the mill sales value of flour from the cost of flour to the baker.

The baker-wholesaler spread was allocated into components by use of data in the NCFM Technical Study No. 5, American Baker's Association Cost Survey for 1972, and SEC-FTC quarterly financial reports. The NCFM data were used to initially allocate the spread, excluding profits and other ingredients. American Baker's Association data were used for determining trends and updating the allocation of the margin into cost and profit components.

Rice (table 11)

Margin components were estimated for 1 pound of regular long grain rice. Since almost all long grain rice is grown in the South, rice prices and costs at Southern mills and transportation rates for rice from these mills to consuming centers were used. The retail price is the U. S. average price reported by BLS for long grain rice.

The farm value for long grain rice was derived from the average price for long and medium grain rice produced in the South reported by SRS, and the price differential between long and medium grain milled rice obtained from Market News prices. Census of Manufacturers data were used to allocate the farm value of rough rice among table rice and other products.

Costs of milling rice were derived from an ERS survey of milling costs for 1971/72. Intercity transportation cost for packaged rice was based on rail freight rates from the South to various consuming centers published in "The Southern Rice Industry", edited by Marshall Godwin and Lonnie Jones, Texas A&M, 1970, and rate indexes compiled by ERS.

Table 10 -- White pan bread: Components of margins per 1-pound loaf, 1972

Costs and profit	Farm value 1/	Marketing functions: Assembly (wheat) 2/	Flour miller spread 3/: Processing	Flour miller spread 3/: Wholesaling	Transportation of flour to bakery 4/	Baker-wholesale spread 5/: Processing	Baker-wholesale spread 5/: Wholesaling	Retailing	Retail price
				Cents					
Labor	-	0.055	0.211	0.036	-	2.54	4.31	2.69	-
Packaging	-	-	.017	-	-	.84	.11	.10	-
Transportation	-	.294	-	-	-	-	.04	-	-
Business taxes	-	.002	.012	-	-	.08	.06	.11	-
Depreciation	-	.009	.029	-	-	.30	.21	.03	-
Rent	-	.001	-	-	-	-	.10	.06	-
Repairs	-	.005	-	-	-	.08	.06	.02	-
Advertising	-	-	-	.016	-	-	.76	.44	-
Interest	-	.003	.010	.002	-	.01	.02	.07	-
Energy	-	.004	.026	-	-	.13	-	.01	-
Other	-	.016	.127	.054	-	2.86	2.59	.54	-
Profit	-	.011	.048	.012	-	.32	.58	.53	-
Total	2.8	.400	.480	.120	0.3	7.16	8.84	4.60	24.7

1/ Based on wheat prices received by farmers at country elevator less imputed value of byproducts. Includes the marketing certificate. 2/ This averaged 31.8 cents per bushel of wheat (87 percent to flour) based on a 0.4-cent price spread between the farm price and f.o.b. mill cost of wheat in a 1-pound loaf of bread. 3/ Spread between f.o.b. mill sales value of flour (0.6329 lb.) used per 1-pound loaf of bread and the f.o.b. mill cost of 0.01445 bushel of wheat less imputed cost of millfeeds. 4/ The price of flour received by the miller deducted from the cost of flour to the baker represents transportation between the two points. 5/ Spread between the estimated price received by bakers for bread delivered to store shelf and the estimated cost of flour to the baker. This deviates from marketing spreads received by baker-wholesalers for bread normally reported by ERS, because this spread includes "other" cost of processing of 2.2 cents for the cost to the baker of nonflour ingredients. Cost components are based on National Commission on Food Marketing data, American Baker's Association Cost Survey data for 380 plants in 1972, and SEC-FTC quarterly financial data.

Table 11.-- Rice (long grain): Components of margins per 1-pound package, 1972

Costs and profit	Farm value 1/	Milling spread 2/	Packaging and wholesaling	Retailing	Retail price
		Marketing functions			
			Cents		
Labor	-	0.36	-	2.3	-
Packaging	-	.38	-	.1	-
Transportation .	-	.18	4/ 1.24	-	-
Business taxes .	-	.03	-	.2	-
Depreciation ...	-	.09	-	.2	-
Rent	-	.12	-	.3	-
Repairs	-	.04	-	.1	-
Advertising	-	.01	-	.4	-
Interest	-	.11	-	5/	-
Energy	-	.04	-	.1	-
Other	-	.23	-	.2	-
Profit	-	3/.15	-	.2	-
Unallocated	-	-	7.56	-	-
Total	9.4	1.74	8.80	4.1	24.0

1/ Based upon an estimated average farm price of $6.81 per hundredweight of rough rice (derived from production and the average price for long and medium grain rice produced in the South reported by SRS, and the price differential between long and medium grain milled rice at Southern mills), adjusted for value of byproducts (82.8 percent of farm price charged to table rice) and an estimated yield of 60.2 pounds of table rice per hundredweight of rough long grain rice.
2/ Based on "Rice Milling Costs in the United States, 1971/72," March 1973, unnumbered report, an ERS survey of all mills. Spread excludes drying costs because the farmer's price is net of drying charges. Includes a charge for transportation on the portion of rice purchased away from the mill and not paid in the purchase price.
3/ Assumed at 10 percent of spread less transportation cost.
4/ Intercity costs for packaged rice based on data in "The Southern Rice Industry," edited by Godwin, Marshall K., and Jones, Lonnie L., Texas A&M, 1970, adjusted upward 35 percent to allow for inflation in rail rates, 1967-72.
5/ Less than 0.1 cent.

Fresh Apples (table 12)

Data for the 1972/73 crop year were obtained from 45 apple packing firms to make cost estimates for marketing fresh apples. Data were derived from these major production regions: (1) New York (Hudson Valley); (2) the Appalachia area (Virginia, West Virginia, and Pennsylvania); (3) Michigan; and (4) Washington (Yakima and Wenatchee counties).

Storage and packing costs were obtained for Red Delicious apples in each region and for McIntosh in New York, Jonathan in Michigan, and Winesap in Washington. Varietal differences were not found to cause any significant cost variations among regions. U. S. average packing costs were computed by weighting the individual firm cost estimates by their varietal packout quantities. Storage costs for regular and controlled atmosphere storage facilities for each firm were weighted by firm sales of fresh apples and by the proportion of fresh apples entering each type of storage.

A U. S. average f.o.b. packinghouse-to-wholesale transportation cost was estimated by weighting truck and rail rates (secured from published rates, packing shed operators, and truck brokers) by AMS data for truck and rail unloads of fresh apples in New York, Atlanta, Washington, D.C., Chicago, Dallas, Los Angeles, and Seattle (hereafter referred to as "seven selected cities"). These markets are chosen because of the availability of pricing information at the wholesale and retail levels. The cost of hauling apples from the orchard to the packinghouse or storage facility was determined from the 1973 survey. Growers are usually responsible for hauling costs although the actual service may be performed by the grower, packer, or a third party.

An f.o.b. packinghouse price was derived by weighting Market News Service weekly apple prices by AMS fresh apple unload data for 41 cities and regional varietal quantity estimates. The farm value of apples was derived by deducting from the SRS U. S. fresh apple farm price (quoted at packer's door or point of first purchase) an estimate of transportation cost from the orchard to the packing shed. Farm value and marketing costs include an allowance for a 4 percent loss at retail.

Profit is a residual calculated by subtracting packing and storage costs and the farm value of apples from the f.o.b. price. Most respondents were either unwilling or unable to give any approximation of profits.

The estimates of total packing and storage costs are believed to be accurate. Estimates for labor, packaging, and transportation costs are more reliable than the estimates of other cost components. In the survey, packers seldom used accounting records to estimate packing costs. As a result, they tended to only furnish estimates of those major variable costs which are most significant and familar to them. Costs such as overhead expenditures are not as well known since most firms pack other fruits besides apples and do not allocate overhead expenditures to a specific commodity.

Table 12.--Apples: Components of margins per 3-pound bag at retail, 1972/73 season.

Costs and profit	Farm value 1/	Marketing functions: Storage 2/	Packing	Wholesaling	Retailing	Retail price 3/
			Cents			
Labor	-	-	4.9	-	12.5	-
Packaging	-	-	4/ 4.6	-	.1	-
Transportation	-	-	5/ .4	6/5.6	-	-
Business taxes	-	-	.2	-	.5	-
Depreciation	-	-	.4	-	.3	-
Rent	-	-	.1	-	.7	-
Repairs	-	-	.2	-	.2	-
Advertising	-	-	7/	-	1.5	-
Interest	-	-	.4	-	.4	-
Energy	-	-	.2	-	.7	-
Other	-	-	8/1.6	-	3.3	-
Profit	-	-	9/1.9	-	3.3	-
Unallocated	-	-	-	10/ 6.3	-	-
Total	27.3	2.5	14.9	11.9	23.5	80.1

1/ Derived from the SRS U.S. fresh apple price per pound quoted at packer's door or point of first purchase minus the transportation cost from grower to processor.
2/ Regional regular (RA) and controlled atmosphere (CA) storage charges were weighted by regional RA and CA storage statistics to obtain a U.S. storage cost. This figure was then adjusted by the proportion of the U.S. fresh pack entering storage.
3/ Average of BLS monthly retail prices for the crop year weighted by fresh apple unloads (truck and rail) in New York, Atlanta, Washington, D.C., Chicago, Dallas, Los Angeles, and Seattle.
4/ Includes costs for the master carton, trays, bags, wrappers, liners, glue, and staples.
5/ Cost for hauling apples from orchard to packinghouse or storage facility. This service could be handled by grower, packer, or third party.
6/ Intercity transportation costs were weighted by fresh apple unloads by most common carrier (truck or rail) in New York, Atlanta, Washington, D.C., Chicago, Dallas, Los Angeles, and Seattle.
7/ Less than 0.1 cent.
8/ Includes office, selling, inspection fees, insurance, waxing and fungicide supplies, and other miscellaneous expenses not otherwise specified.
9/ Profit is a residual derived from the f.o.b. price minus packing and storage costs and the farm value of apples.
10/ Residual derived by subtracting farm value and other marketing costs from the retail price.

Table 13.--Applesauce: Components of margins per 303 can, 1972/73 season

Costs and profits	Farm value 1/	Marketing functions			Retail price 2/
		Processing	Wholesaling	Retailing	
		Cents			
Labor	-	2.3	-	2.8	-
Packaging	-	3/ 5.2	-	.1	-
Transportation ...	-	4/ .3	5/ 0.9	-	-
Business taxes ...	-	.1	-	.1	-
Depreciation	-	.3	-	.1	-
Rent	-	.5	-	.3	-
Repairs	-	.2	-	.1	-
Advertising	-	.1	-	.5	-
Interest	-	.3	-	.1	-
Energy	-	.3	-	.1	-
Other	-	6/ 1.4	-	.6	-
Profit	-	-.1	-	.6	-
Unallocated	-	-	7/ 1.8	-	-
Total	5.5	10.9	2.7	5.4	24.5

1/ Estimated from the SRS U.S. price of apples going to processing (quoted at processor's door), using a conversion factor of 64.5 cases of applesauce (24/No. 303 cans per case) per ton of apples, adjusted for transportation cost from grower to processor and the addition of other raw agricultural inputs, mainly sugar.
2/ Average of BLS prices for Detroit and Pittsburgh, September 1972-August 1973.
3/ Includes costs for cans, cardboard containers, labels, and other supplies.
4/ Hauling charge from orchard to processing plant. Pricing is usually on a delivered basis with grower responsible for hauling.
5/ Weighted average applesauce rail rates between major production and consumption centers were applied to estimated regional applesauce shipments based on regional distribution obtained from a 1970 ERS industry survey.
6/ Includes selling costs, insurance, and other items not otherwise specified.
7/ Residual derived by subtracting farm value and other marketing costs from the retail price.

Applesauce (table 13)

Processing costs for a No. 303 can of applesauce were estimated from the following sources of data: (1) Surveys of four firms (two each in Michigan and Appalachia) during the summer of 1973; (2) a 1970 survey of 29 processing establishments in the Northeast, Appalachia, the Lake States, the Northwest, and California; and (3) estimates obtained from Touche Ross and Company. Only data from the 1973 survey were consistent with the components of margins that were estimated in this study.

The f.o.b.-to-wholesale transportation cost was derived by weighting rail rates for applesauce (obtained from the Department of Commerce) between the major apple production regions (as listed for fresh apples) and the seven selected cities by regional applesauce shipments as determined from a 1970 ERS industry survey. The cost of hauling apples to the processing plant from the orchard was assumed to be the same as for fresh apples. The standard pricing arrangement is a delivered price with the grower paying transportation charges.

The value of apples used per No. 303 can of applesauce was estimated from SRS prices of apples going to processing (quoted at processor's door), using a conversion factor of 64.5 cases (24/No. 303 cans) of applesauce per ton of apples. This value was reduced by the transportation cost from the orchard to processing plant. The value of other agricultural inputs (mainly sugar) was added to obtain the estimated total farm value for applesauce.

The total of processing costs and farm value exceeded the f.o.b. price resulting in a slight processing loss. Firms reported that there is usually a loss associated with processing and packing No. 303 canned applesauce while other sizes typically show a profit.

Fresh Oranges (table 14)

Estimates were made for California Valencia and Navel oranges. Costs for packing California fresh oranges were derived from data obtained from Sunkist Growers, Inc., the California-Arizona Citrus League, and other industry sources. Profit from packing operations is based on records of a sample of firms.

Intercity transportation cost was computed from rail or truck costs obtained from industry sources weighted by AMS estimates of average fresh California orange unloads by most common mode of transport in Chicago, Los Angeles, New York, and Seattle. The farm value of fresh oranges was derived from the SRS season average price at the packinghouse door minus an estimate, by packinghouse operators, of the transportation cost from field to packing house. Farm value and marketing costs include an allowance for a 3 percent loss at retail.

Single Strength Orange Juice (table 15)

Processing costs for Florida canned single strength orange juice were derived from "Cost of Processing, Warehousing, and Selling Florida Citrus Products, 1971/72 Season," Econ. Rpt. 46, April 1973, by A. H. Spurlock, University of Florida. Members of the industry were contacted to update the costs to the 1972/73 season. Processing costs are considered representative of U. S. averages since most (78 percent) single strength orange juice is produced in Florida and the estimates are based on data which were reviewed by the industry. Profit is a residual determined by subtracting processing costs and farm value from a preliminary estimate of the season average f.o.b. price based on data published in "Food Production Management" m[illegible] and projections by members of the Florida Department of Citrus.

Table 14.--Oranges, California Valencia and Navel, all sizes: Components of margins per dozen at retail, 1972/73 season

Costs and profit	Farm value 1/	Marketing functions			Retail price 2/
		Packing	Wholesaling	Retailing	
	Cents				
Labor	-	4.3	-	29.8	-
Packaging	-	3.6	-	1.0	-
Transportation	-	3/ 1.5	4/ 10.3	-	-
Business taxes	-	.9	-	1.5	-
Depreciation	-	.6	-	.8	-
Rent	-	.1	-	1.7	-
Repairs	-	.4	-	.6	-
Advertising	-	2.1	-	2.2	-
Interest	-	.1	-	.8	-
Energy	-	.3	-	1.6	-
Other	-	3.2	-	6.2	-
Profit	-	5/ 1.1	-	5.9	-
Unallocated	-	-	6/ 9.3	-	-
Total	32.1	18.2	19.6	52.1	122.0

1/ Farm value is for a harvested product and was derived from Market News Service f.o.b. and SRS crop season on-tree prices in conjunction with packing and hauling cost data.
2/ BLS monthly retail prices for the period December 1972-October 1973 for Chicago, Los Angeles, New York, and Seattle (four cities) weighted by unloads.
3/ Hauling charge for shipments between grower and packer where the standard pricing arrangement is a delivered price. Hauling may be performed by grower, packer, or third party.
4/ Intercity transportation costs by most common carrier (rail or truck) weighted by California fresh unloads in four cities.
5/ Profit is a sample estimate and not a residual.
6/ Residual derived by subtracting farm value and other marketing costs from the retail price.

Transportation costs from the Florida f.o.b. shipping point to Pittsburgh and Detroit by rail were obtained from industry sources. The orchard-to-processing plant shipping cost was obtained from the Spurlock report.

The farm value of oranges used per can of single strength orange juice was calculated from the season average Florida price reported by the Florida Canners Association (quoted at processor's door), using a conversion factor of 0.7780 box of oranges (one box equals 90 pounds in Florida) per case (12-46-ounce cans) of juice. The transportation cost from orchard to processing plant was deducted from this value to get a net farm value or return to the grower.

Table 15.--Orange juice, Florida single strength: Components of margins per 46-ounce can, 1972/73 season

Costs and profit	Farm value 1/	Marketing functions: Processing	Wholesaling	Retailing	Retail price 2/
		Cents			
Labor	-	2.8	-	4.9	-
Packaging	-	10.1	-	.1	-
Transportation .	-	3/ .9	4/ 6.7	-	-
Business taxes .	-	.1	-	.3	-
Depreciation ...	-	.5	-	.3	-
Rent	-	.3	-	.6	-
Repairs	-	.4	-	.2	-
Advertising	-	.7	-	.9	-
Interest	-	.3	-	.1	-
Energy	-	.3	-	.2	-
Other	-	1.6	-	1.1	-
Profit	-	5/ 1.2	-	1.1	-
Total	13.8	19.2	6.7	9.6	49.3

1/ Estimated from the season average Florida price reported by the Florida Canners Association (quoted at processor's door), using a conversion factor of 0.7780 box of oranges per case (12-46-ounce cans) of single strength orange juice, adjusted for transportation cost from grower to processor and the addition of sugar and sucaryl.
2/ Average of BLS prices for Detroit and Pittsburgh for the marketing season.
3/ Hauling charge from grower to processor where the standard pricing arrangement is a delivered price. Hauling may be performed by grower, processor, or third party.
4/ Intercity transportation costs by rail to Pittsburgh and Detroit.
5/ Profit is a residual estimated by deducting farm value and processing costs from the f.o.b. price.

Frozen Concentrated Orange Juice (table 16)

The sources of data and procedures for estimating processing costs for frozen concentrated orange juice were the same as those for single strength orange juice. Since almost all (97 percent) orange concentrate is produced in Florida and the data were derived with close industry participation, the cost estimates are believed to be indicative of U. S. average costs. Profit was a residual obtained by deducting processing costs and the farm value from the f.o.b. Florida season average price estimated by the American Institute of Food Distribution. It was not possible to determine if the estimate is representative of average industry profits.

Table 16.--Orange juice, Florida frozen concentrate: Components of margins per 6-ounce can, 1972/73 season

Costs and profit	Farm value 1/	Marketing functions			Retail price 2/
		Processing	Wholesaling	Retailing	
			Cents		
Labor	-	.9	-	2.8	-
Packaging	-	2.2	-	.2	-
Transportation ...	-	3/ .5	4/ 1.1	-	-
Business taxes ...	-	5/	-	.2	-
Depreciation	-	.1	-	.1	-
Rent	-	.2	-	.3	-
Repairs	-	.2	-	.1	-
Advertising	-	.4	-	.4	-
Interest	-	.1	-	.1	-
Energy	-	.2	-	.3	-
Other	-	.7	-	.5	-
Profit	-	6/ 1.5	-	.5	-
Unallocated	-	-	7/ 3.2	-	-
Total	8.2	7.0	4.3	5.5	25.0

1/ Estimated from the season average Florida price reported by the Florida Canners Association (quoted at processor's door), using a conversion factor of 0.4224 box of oranges per case (12/6-ounce cans) juice concentrate, adjusted for the transportation cost from grower to processor.
2/ Average of BLS prices, December 1972-November 1973.
3/ Hauling charge from grower to processor where the standard pricing arrangement is a delivered price. Hauling may be performed by grower, canner, or third party.
4/ Intercity transportation costs by truck weighted by Florida sales of frozen orange concentrate to purchasers in New York, Atlanta, Chicago, Dallas, and Pittsburgh.
5/ Less than 0.1 cent.
6/ Profit is a residual estimated by deducting farm value and processing costs from the f.o.b. price.
7/ Residual derived by subtracting farm value and other marketing costs from the retail price.

The value of oranges used in frozen concentrate was computed from the season average Florida price reported by the Florida Canners Association (quoted at the processor's door), utilizing a conversion factor of 0.4224 box of oranges (one box equals 90 pounds in Florida) per case (12/6-ounce cans) of orange concentrate. Transportation cost from the orchard to processing plant was deducted from this value to derive the farm value.

Fresh tomatoes (table 17)

Estimates were made for winter and early spring fresh Florida tomatoes. Florida produces 89 percent of U. S. fresh tomatoes during this period. Fresh tomato packing costs were derived from an ERS survey of 5 out of 52 fresh tomato packers in Florida. An estimate of profit was derived by utilizing data from "Costs and Returns from Vegetable Crops in Florida, Season 1971/72 with Comparisons," by D. L. Brooke, Econ. Rpt. 44, University of Florida, and firm pricing information from the ERS survey of packers. The cost data are considered good estimates, but unlike some of the other fruit products, there was no independent estimate of farm value from which a check on packing costs could be conducted.

Transportation costs for fresh tomato shipments from Florida to five selected cities were derived from data obtained from truck brokers weighted by AMS Florida fresh tomato unloads in the regions represented by the five cities. The cost of hauling tomatoes from the field to packing plant, which is usually incurred by the grower, was derived from the Brooke study.

The farm value of fresh tomatoes was estimated by subtracting packing costs from an f.o.b. price estimated by weighting SRS average Florida fresh tomato f.o.b. prices for winter and early spring by SRS estimates of quantities harvested of Florida winter and early spring tomatoes. Farm value and marketing costs include an allowance for a 15 percent loss at retail.

Canned tomatoes and tomato catsup (tables 18 and 19)

Processing costs for canned whole tomatoes of standard grade and tomato catsup were based on synthetic costs for a representative California firm, updated to 1972/73 using numerous secondary sources. Profit was not estimated since a source of data could not be found. A profit residual could not be calculated because data for rent and several other costs were also lacking.

Wholesale transportation costs were computed by weighting transportation rates by the most common mode of transport to five selected cities by city population estimates. The field-to-processing plant hauling cost was estimated by industry sources.

The farm value of tomatoes used per case of products was derived from the SRS California price for processing tomatoes (quoted at processor's door) adjusted for field-to-processing plant transportation cost and other agricultural inputs. The sum of processing and transportation costs and farm value is equal to the SRS California season average f.o.b. price for canned whole tomatoes.

Table 17.--Fresh tomatoes,(Florida winter and early spring, all sizes and varieties): Components of margins per pound at retail, 1972/73 season.

Costs and profit	Farm value 1/	Marketing functions: Packing	Marketing functions: Wholesaling	Marketing functions: Retailing	Retail price 2/
		Cents			
Labor	-	1.6	-	8.9	-
Packaging	-	1.4	-	.3	-
Transportation	-	3/ .5	4/ 3.0	-	-
Business taxes	-	.1	-	.4	-
Depreciation	-	.4	-	.2	-
Rent	-	.1	-	.5	-
Repairs	-	.2	-	.2	-
Advertising	-	5/	-	.9	-
Interest	-	.1	-	.3	-
Energy	-	5/	-	.5	-
Other	-	.6	-	2.5	-
Profit	-	.4	-	2.5	-
Unallocated	-	-	6/ 11.5	-	-
Total	13.4	5.4	14.5	17.2	50.5

1/ Derived by deducting packing and hauling costs from the f.o.b. price.
2/ Average of BLS monthly retail prices for the crop year weighted by Florida monthly fresh tomato shipments to New York, Atlanta, Chicago, Dallas, and Los Angeles.
3/ Includes a hauling charge from grower to packing plant and an intrapacking plant transportation cost.
4/ Intercity transportation rates for the most common carrier (rail or truck) weighted by Florida winter and early spring unloads in New York, Atlanta, Chicago, Dallas, and Los Angeles.
5/ Less than 0.1 cent.
6/ Residual derived by subtracting farm value and other marketing costs from the retail price.

Table 18.--Canned whole tomatoes, California: Components of margins per No. 303 can, 1972/73 season.

Costs and profit	Farm value 1/	Marketing functions: Processing	Wholesaling	Retailing	Retail price 2/
		Cents			
Labor	-	2.2	-	2.40	-
Packaging	-	3/ 6.0	-	.10	-
Transportation	-	4/ .5	5/ 2.2	-	-
Business taxes	-	.1	-	.14	-
Depreciation	-	.9	-	.09	-
Rent	-	na	-	.17	-
Repairs	-	na	-	.06	-
Advertising	-	na	-	.43	-
Interest	-	.4	-	.05	-
Energy	-	.1	-	.04	-
Other	-	na	-	.41	-
Profit	-	na	-	.36	-
Unallocated	-	4.0	6/ .8	-	-
Total	2.3	14.2	3.0	4.25	23.7

na = not available.

1/ Estimated from the SRS California price of processing tomatoes (quoted at processor's door) using a conversion factor of 36.36 pounds of tomatoes per case (24 No. 303 cans) of whole tomatoes, adjusted by the transportation cost from grower to processor and the addition of agricultural supplies.

2/ Average of BLS prices, August 1972-July 1973.

3/ Includes costs for cases, cans, and labels.

4/ Grower arranges field-to-plant hauling but is reimbursed by canner. An average California charge of $6.00 per ton was used in calculating cost.

5/ Intercity transportation costs for the most common carrier (rail or truck) weighted by population estimates for New York, Chicago, Atlanta, Dallas, and Los Angeles.

6/ Residual derived by subtracting farm value and other marketing costs from the retail price.

Table 19.--Tomato catsup, California fancy grade: Components of margins per 14-ounce bottle, 1972/73 season.

Costs and profits	Farm value 1/	Marketing functions: Processing	Marketing functions: Wholesaling	Marketing functions: Retailing	Retail price 2/
	Cents				
Labor	-	2.3	-	2.5	-
Packaging	-	3/ 6.5	-	.1	-
Transportation	-	4/ .7	5/ 2.8	-	-
Business taxes	-	.1	-	.2	-
Depreciation	-	1.4	-	.2	-
Rent	-	na	-	.5	-
Repairs	-	6/	-	.2	-
Advertising	-	na	-	.6	-
Interest	-	.5	-	6/	-
Energy	-	.3	-	.1	-
Other	-	na	-	.4	-
Profit	-	na	-	.3	-
Unallocated	-	2.1	7/ 3.3	-	-
Total	5.3	13.9	6.1	5.1	30.4

na = not available.

1/ Estimated from the SRS California season average price of processing tomatoes (quoted at processor's door) using a conversion factor of 53.45 pounds of tomatoes per case (24/14-oz. bottles) of catsup, adjusted for the transportation cost from grower to processor and the addition of sugar, vinegar, salt, and spices.

2/ Average of BLS prices for San Francisco and Seattle for the marketing season August 1972-July 1973.

3/ Includes costs for cases, bottles, and labels.

4/ Grower arranges field-to-plant hauling but is reimbursed by canner. An average California charge of $6.00 per ton was used in calculating cost.

5/ Intercity transportation costs for the most common carrier (rail or truck) weighted by population estimates for New York, Chicago, Atlanta, Dallas, and Los Angeles.

6/ Less than 0.1 cent.

7/ Residual derived by subtracting farm value and other marketing costs from the retail price.

Lettuce (table 20)

Data on fresh lettuce were collected entirely from California, but its share of U. S. output is very substantial, accounting for 72 percent in the 1972/73 season. Two firms, both in Salinas County, furnished harvesting and packing costs. Only one was able to provide estimates of overhead expenditures, due to the difficulty of allocating costs associated with multicropped fields. Due to the small amount of data available and problems in allocating costs, estimates (which include costs for harvesting as well as packing, since the operations are performed simultaneously) could not be made for some components of margins. The estimate of total harvesting and packing costs and the labor and packaging components are considered reasonably close approximations of the industry average. A profit rate of 3.5 percent of the f.o.b. price was arrived at based on one firm's operations. This rate is the firm's estimate of its average 1972/73 profit margin. Some harvesting operations incurred losses while others realized profits.

Before cartons of lettuce are shipped from the field to the next marketing level, the lettuce is vacuum cooled to reduce quality breakdown during transit. Costs of cooling and loading lettuce were obtained from several firms in Salinas County. Field-to-wholesale shipments of lettuce usually are divided about 60 percent to truck and 40 percent to rail, but data on truck transportation costs were very sketchy and subject to large short-term variation. Thus, published rail rates from California to the five selected cities were weighted by AMS fresh lettuce unload statistics for these cities to obtain an average transportation cost. A large trucking firm that leases trucks for harvesting and packing lettuce provided estimates on cost for trucking empty cartons and stitching equipment into the field, and the cost of hauling the packed cartons to the cooling plant.

The farm value of lettuce was derived by subtracting harvesting and packing costs and profit from the SRS f.o.b. price for California lettuce. Farm value and marketing costs include an allowance for a 6 percent loss at retail.

Potatoes (table 21 and 22)

Packing cost estimates for fresh fall potatoes were based on information provided by the University of Maine, the Idaho Grower-Shippers' Association, and 10 potato packers in Maine, North Dakota, Minnesota, and Idaho. These States accounted for over half of fall potato production. Costs were fairly uniform across the Nation. However, potato processors in the Northwest often practice "skimming"--picking out choice potatoes from field run potatoes and packing them for the fresh market. "Skimmed" fresh potato packing operations were not included in this study because potato processors were unable to provide cost information.

Processing costs for frozen french fried potatoes were obtained from a small number of firms in Maine and Idaho. Cost information for a 9-ounce package was limited because many firms do not handle this size, preferring the 1-pound, 2-pound, or 5-pound polyethylene bag. Of those firms that handle the 9-ounce package, it generally represents only a small fraction of

their total output. Frequently the small pieces of fries not acceptable for the institutional trade are put up in the 9-ounce package. Specific costs for the 9-ounce package were not generally available. A constant of 3.8 cents was added to the cost of packaging since firms reported that if they were to produce all 9-ounce packages, their costs would increase by almost 4 cents per pound. An f.o.b. price and transportation costs were estimated on the basis of conversations with processors and information reported.

Table 20.--Lettuce, California: Components of margins per head at retail, 1972/73 season.

Costs and profit	Farm value 1/	Marketing functions: Harvesting and field packing	Wholesaling	Retailing	Retail price 2/
		Cents			
Labor	-	2.6	-	12.4	-
Packaging	-	1.3	-	.4	-
Transportation	-	3/ .3	4/ 6.1	-	-
Business taxes	-	.1	-	.7	-
Depreciation	-	na	-	.1	-
Rent	-	na	-	.3	-
Repairs	-	na	-	.1	-
Advertising	-	na	-	.8	-
Interest	-	5/	-	.1	-
Energy	-	na	-	.3	-
Other	-	6/ 1.6	-	1.3	-
Profit	-	7/ .4	-	.7	-
Unallocated	-	-	8/ 9.7	-	-
Total	3.7	6.3	15.8	17.2	8/ 43.0

na = not available.

1/ Derived by subtracting costs for harvesting and field-packing plus profit from the f.o.b. price.

2/ Average of BLS monthly retail prices for the crop year weighted by unloads (rail and truck) of California lettuce in "five selected cities."

3/ Includes rate for trucks to carry empty cartons and stitching equipment plus cost to haul packed cartons to f.o.b. shipping point.

4/ Includes cooling and loading cost of 1.2 cents at point of production and intercity transportation costs for the most common carrier (truck or rail) weighted by California fresh lettuce unloads in New York, Chicago, Atlanta, Dallas and Los Angeles ("five selected cities") of 4.9 cents.

5/ Less than 0.1 cent.

6/ Includes costs for insurance, telephone and telegraph, office salaries, sales salaries, brokerage fees, allowances for damaged merchandise, and other unspecified costs.

7/ Estimate of profit based on 3.5 percent of f.o.b. price.

8/ Residual derived by subtracting farm value and other marketing costs from retail price.

Table 21.--Potatoes (fall), fresh: Components of margins per 10-pound bag, 1972/73 season.

Costs and profit	Farm value 1/	Marketing functions: Packing	Marketing functions: Wholesaling	Marketing functions: Retailing	Retail price 2/
	Cents				
Labor	-	6.2	-	18.6	-
Packaging	-	3/ 5.5	-	.3	-
Transportation	-	.3	12.3	-	-
Business taxes	-	.2	-	1.2	-
Depreciation	-	.8	-	.8	-
Rent	-	4/	-	1.6	-
Repairs	-	.5	-	.5	-
Advertising	-	.1	-	2.0	-
Interest	-	.4	-	.5	-
Energy	-	.4	-	1.5	-
Other	-	5/ 2.1	-	4.3	-
Profit	-	1.5	-	4.1	-
Unallocated	-	-	6/ 9.1	-	-
Total	38.6	18.0	21.4	35.4	113.4

1/ Includes on-farm storage, hauling to packing plant, and shrink.
2/ BLS monthly retail prices weighted by unloads (rail and truck) in New York, Chicago, Atlanta, Dallas and Los Angeles.
3/ Includes cost of master container as well as polyethylene bags.
4/ Less than 0.1 cent.
5/ Includes administrative, brokerage, insurance, waxing, non-acceptance of shipped goods, and other unspecified costs.
6/ Residual derived by subtracting farm value and other marketing costs from the retail price.

Table 22.--Potatoes, frozen french fried: Components of margins per 9-ounce package, 1972/73 season.

Costs and profit	Farm value 1/	Marketing functions: Processing	Marketing functions: Wholesaling	Marketing functions: Retailing	Retail price 2/
	Cents				
Labor	-	1.05	-	2.46	-
Packaging	-	3/ 4.07	-	.14	-
Transportation	-	4/ .05	1.03	-	-
Business taxes	-	.05	-	.16	-
Depreciation	-	.23	-	.08	-
Rent	-	.03	-	.17	-
Repairs	-	.12	-	.06	-
Advertising	-	na	-	.30	-
Interest	-	na	-	.03	-
Energy	-	.25	-	.19	-
Other	-	na	-	.33	-
Profit	-	na	-	.22	-
Unallocated	-	2.51	5/ .25	-	-
Total	3.12	8.36	1.28	4.14	16.9

na = not available.

1/ Includes on-farm storage and hauling to processing plant and approximately a 50-percent loss rate.

2/ Average of BLS prices, September 1972-August 1973.

3/ Includes container materials as well as frying oil, caustic, and other additives.

4/ Costs related to moving raw product within plant and finished product to storage.

5/ Residual derived by subtracting farm value and marketing costs from the retail price.

The marketing bill is a continuing statistical series measuring the total cost of transporting, processing, and distributing U. S. farm foods. It is the difference between total consumer expenditures for farm foods and total payments to farmers for food products. The marketing bill accounts for two-thirds of consumer food expenditures and is almost double the amount received by farmers for food products (fig. 5).

In 1973, consumers spent an estimated $134 billion for foods originating on U. S. farms, $18 billion more than the previous year. The marketing bill was $83 billion, up $6 billion from 1972. For only the second time since 1950, receipts by farmers for food products rose more than the marketing bill. In 1973, farmers received $51 billion, $12 billion more than in 1972. Substantial increases in both livestock and crop prices accounted for most of this rise in farm value.

The marketing bill is the sum of charges made by various marketing agencies, including processors, wholesalers, retail stores, and away-from-home eating places (fig. 6). Food processing costs account for the largest proportion, about 35 percent of the total bill. Retail food store charges account for around 29 percent. Charges connected with preparing and serving food in eating places, including institutions such as schools, and hospitals, make up around 20 percent of the total food marketing bill. Assemblers and wholesalers divide the remaining 16 percent. Over the past 10 years, processing costs as a proportion of the marketing bill has declined while the share of distribution agencies increased.

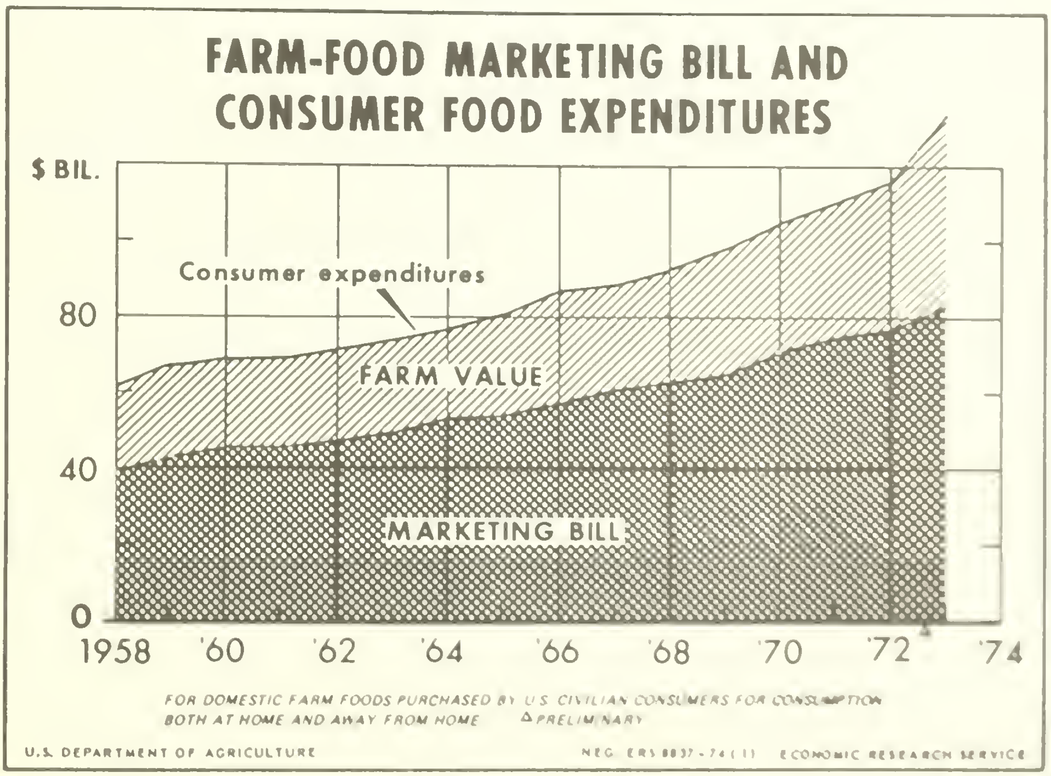

Figure 5

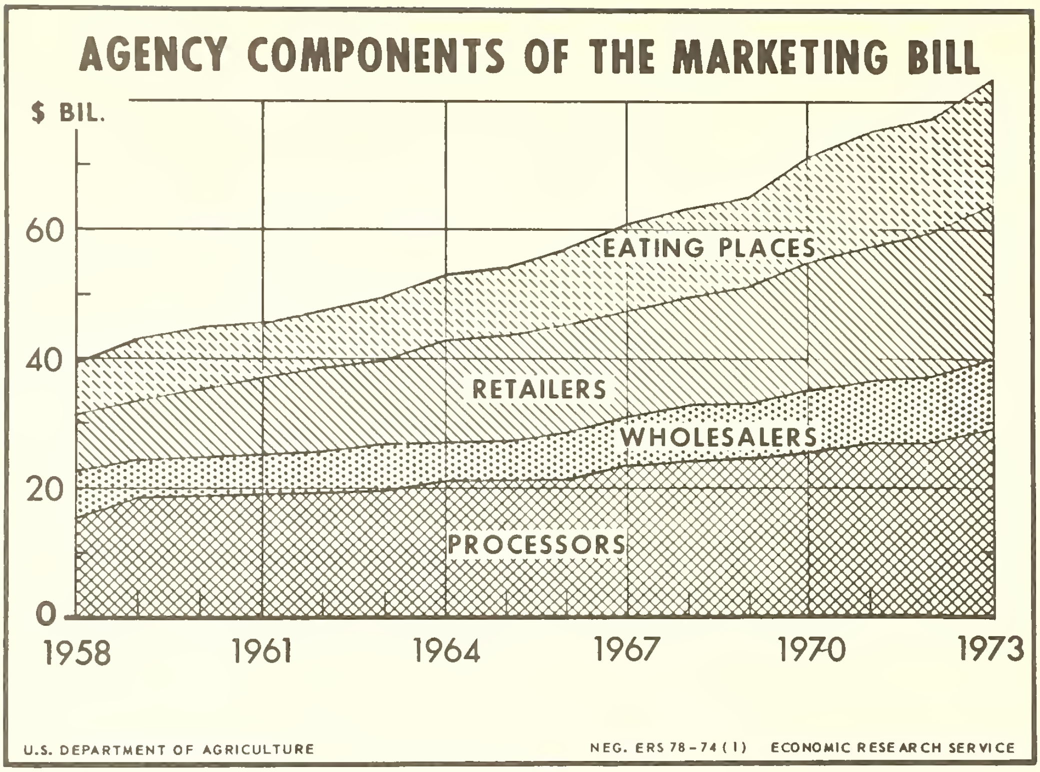

Figure 6

Among commodity groups, marketing charges are the largest for fruits and vegetables, amounting to $21 billion, or nearly 3 out of every 4 dollars spent by consumers for fruits and vegetables (fig. 7). Marketing charges for meat products are nearly as large but account for a smaller proportion, roughly half, of consumer meat expenditures. Marketing charges for most other foods are substantially larger than the return to farmers for these products and therefore account for the major portion of the food dollar.

Factors in the Rise of the Marketing Bill

In the last decade, the food marketing bill rose $33 billion, an annual average of slightly over 5 percent. Last year the bill increased 8 percent, due mainly to increases in prices of inputs bought by marketing firms. Employees' wages continued to climb in 1973, although at a slightly slower rate than in past years.

Over the past decade, increases in marketing costs per unit of product were responsible for half of the total increase in the marketing bill. Most of the increase in cost occurred in the last 5 years. Prices of intermediate goods and services bought by marketing firms rose a third, and employee hourly earnings rose 37 percent. In recent years there has been little increase in the food marketing bill attributable to more processing and preparation of food, and other services per unit of product marketed. Costs of these added services accounted for less than one-fifth of the increased bill for marketing food in the past decade. Costs of marketing the steadily growing volume of food--about 2 percent more each year--caused slightly more than one-third of the increase in the marketing bill.

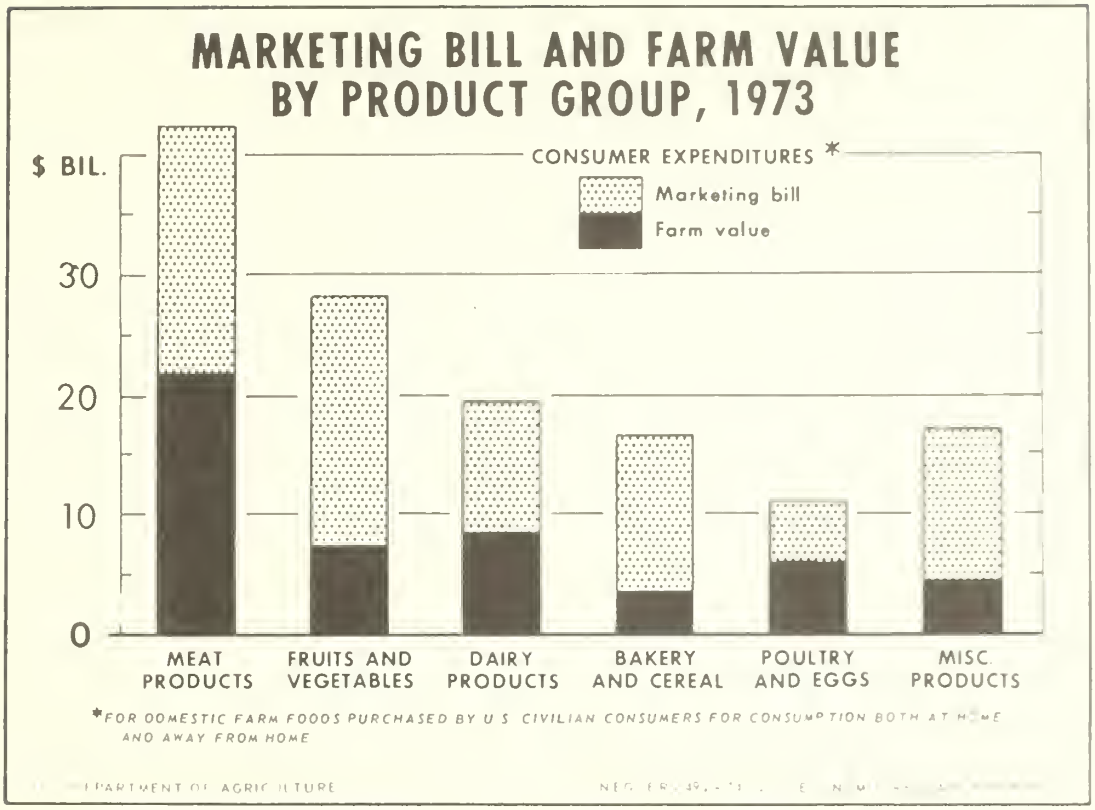

Figure 7

At-Home Versus Away-From-Home Eating

A large and expanding part of the marketing bill is the cost associated with food eaten away from home. Expenditures for food consumed in restaurants and other eating places including institutions were $40 billion in 1973, or 30 percent of total food expenditures.

The marketing bill for away-from-home eating is larger relative to consumer expenditures than that for at-home eating. The at-home marketing bill amounted to $52 billion in 1973 and accounted for 55 percent of consumer expenditures for food bought for use at home. In contrast, the away-from-home marketing bill of $31 billion accounted for 78 percent of away-from-home expenditures for food. The larger proportion for restaurants and institutions reflects the added cost of preparing and serving food.

Paralleling the growth in away-from-home eating, the largest rate of increase in food marketing costs has been in the away-from-home bill. Between 1963 and 1973, marketing charges associated with food bought in restaurants and institutions more than doubled. In contrast, the costs of marketing farm foods that are purchased in retail food stores rose less than half as much, or about 44 percent.

The away-from-home market has grown slightly more as a market for farm products than the food store market. The value of farm products moving through away-from-home channels increased 125 percent--from \$4.0 to \$9.0 billion--between 1963 and 1973. In comparison, the dollar value of products going through food stores rose 110 percent, from \$20.1 billion to \$42 billion.

Cost Components

Labor: Labor costs are the largest costs incurred by firms processing and distributing farm food products, accounting for close to half the marketing bill in recent years (fig. 8). In 1973, labor costs amounted to over \$40 billion, 8 percent more than in 1972. Food processing labor costs were \$12 billion, the largest share of the total labor bill, but were closely followed by labor for food retailing and away-from-home eating at around \$11½ billion each. Wholesalers spent over \$5 billion for labor. Labor costs of all agencies have been rising but in the last 10 years the increase in distribution--retailing, wholesaling, and away-from-home eating--has been about a third greater than in processing.

Changes in the labor component of food marketing costs are closely linked to trends in wages and salaries and productivity. Hourly earnings of food marketing employees continued to rise at about the same rate during the period of wage-price controls as before. Employees of food marketing firms earned an average of \$3.74 per hour in November 1973, 6.3 percent more than in November 1972. This compares with an annual increase of 6.5 percent in 1972 and 6.9 percent in 1971.

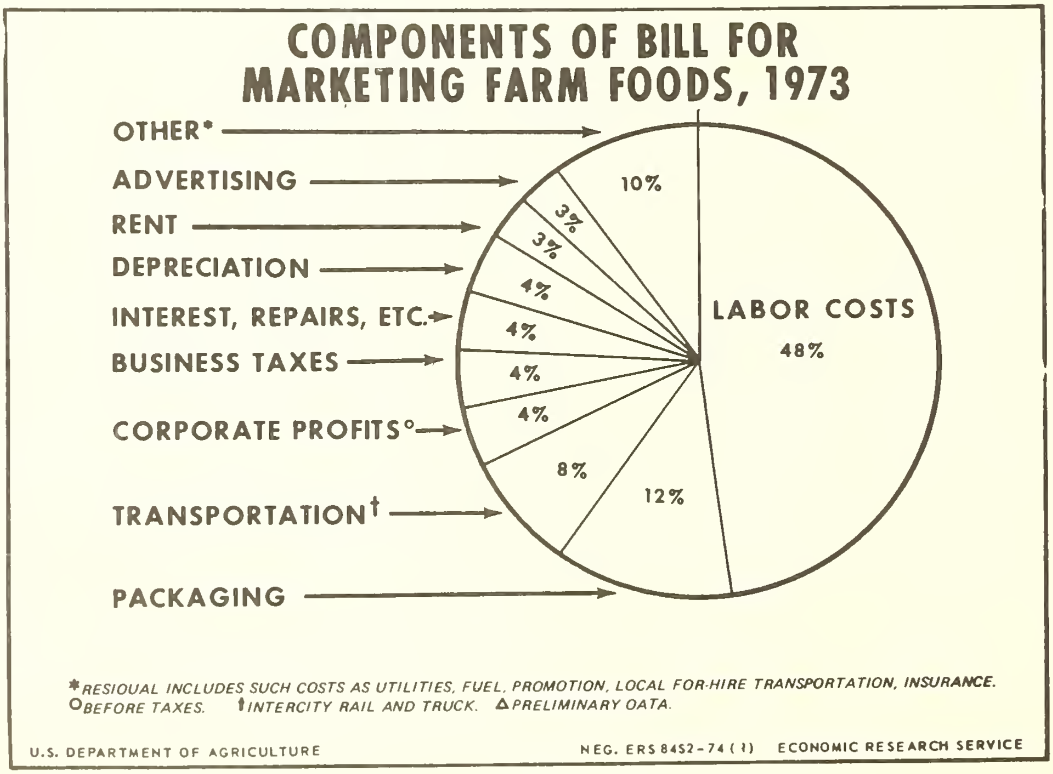

Figure 8

Over the years, food marketing firms have partially offset rising wages and salaries of workers by boosting productivity (output per unit of labor). Since 1967, hourly labor costs have risen by nearly a half, but increases in productivity held down the rise in unit labor costs to around a third.

Containers and Packaging: Food containers and packaging materials are the second largest cost component of the marketing bill. In 1973, food marketing firms spent $10.5 billion for these materials, about 8 percent more than in 1972. Most of the increase in food packaging and material costs resulted from price increases. Prices of paper products, which account for two-fifths of total material costs, rose 9 percent, while glass container prices rose 5 percent.

Transportation: Truck and rail transportation costs are the third largest component of the food marketing bill. In 1973, the cost of shipping farm food products by truck and rail, not including intracity truck transportation, was nearly $6.4 billion, about 4 percent greater than in 1972.

Railroad rate increases the past 2 years were substantially less than in 1970 and 1971. The ERS combined index of railroad freight rates for agricultural commodities averaged 128 in 1972 (1967=100), up 1 point from 1971. The combined index for food products increased slightly more--3 points--to 132. These indexes reflected rail freight rate increases granted by the Interstate Commerce Commission (ICC) in April 1971 and in February and October 1972. The latter two were fairly modest.

The relatively small increase in the index of railroad freight rates in 1972 partly reflected a decline of 5 points in the index for wheat. Indexes of railroad freight rates for other commodities increased in 1972. The decline in rates charged by railroads for hauling wheat was the result of reduced rates in major producing areas where truck competition is increasing.

Rail freight rates for most agricultural commodities in 1973 were increased 3 percent on August 19 and 1.9 percent on October 1. As a result, rate indexes probably rose by a greater amount in 1973 than 1972.

Reports suggest that truck rates for agricultural commodities have increased in recent years, and that truck and barge rates for bulk commodities such as wheat, corn, and soybeans have risen rapidly since mid-1972. However, rate indexes for regulated truck traffic are not available and rates actually paid to truckers for hauling exempt commodities and to water carriers for hauling bulk commodities are not published.

There has been some concern that high food costs are, in part, a result of rapidly escalating transportation costs. Poor conditions of farm-to-market roads, lack of improvement in rural railroads, and congestion of distribution arteries in urban areas are mentioned as problems. The rail freight rate indexes indicate the trend in rail charges, but they are not relevant for assessing other areas and trends in other transport-associated costs borne by shippers and receivers of rail traffic. If intercity rail transportation is becoming slower and less reliable, as is sometimes claimed, the transport-associated costs of shippers and receivers may be increasing faster than the rates they charge.

Other Costs: Other significant cost components of the marketing bill include advertising, depreciation, rent, interest, business taxes, repair costs, bad debt losses, and contributions. These costs amounted to around $15 billion last year--nearly one-fifth of the food marketing bill. Of this group, business taxes and interest costs have increased most, about 8 percent annually since 1967. This reflects increases in property and social security taxes, which together account for three-fourths of total business taxes, and increases in short and long term interest rates.

Corporate Profits

Before-tax profits earned by corporate firms from marketing U. S. farm foods in 1973 are likely to exceed the 1972 total of $3.4 billion, due mainly to an increase in food sales. Profit margins per dollar of sales were held down by rising costs and economic controls. As a component of the food marketing bill, profits have stayed about the same in relative importance over the years ranging between 6 and 7 percent.

In the first 9 months of 1973, profits after taxes of food manufacturers averaged 2.4 percent of sales, the same as a year earlier (fig. 9). Average profit margins of leading food chains remained low in the first 9 months of 1973. Profits after taxes of 15 leading food chains averaged 0.5 percent of sales, slightly less than a year earlier, but much below the historical average of slightly over 1 percent.

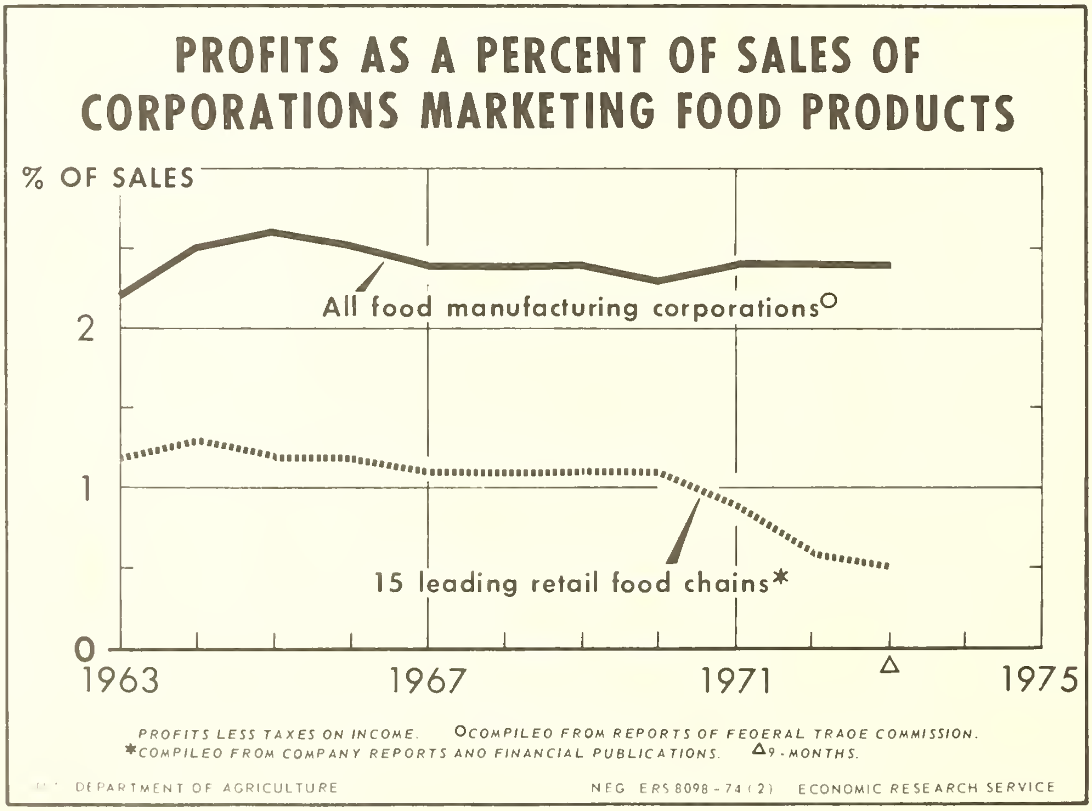

Figure 9

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